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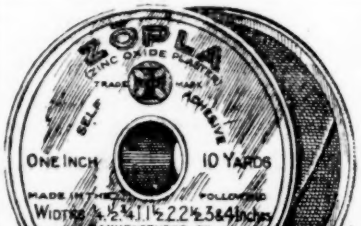

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ON

THE INFLUENCE OF NERVE IMPULSES ON VISCERAL DISORDERS.

Delivered at the Royal College of Surgeons of England on Feb. 9th, 1920,

BY H. TYRRELL GRAY, M.A., M.C. CANTAB., F.R.C.S. ENG.,

SURGEON TO OUT-PATIENTS, WEST LONDON HOSPITAL; SURGEON TO HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET, AND TO THE ITALIAN HOSPITAL; HUNTERIAN PROFESSOR (LATE ARRIS AND GALE LECTURER), ROYAL COLLEGE OF SURGEONS OF ENGLAND.

MR. PRESIDENT AND GENTLEMEN,—The clinical study I have made of this subject arose insensibly out of an investigation into the nature of surgical shock some years ago in conjunction with Dr. Leonard Parsons. I wish at the outset to repeat the apology then offered for inevitable shortcomings in so complicated a subject, involving a familiarity with such specialised subjects as physiology and comparative anatomy, which a clinician can hardly hope to command. I am also anxious to apologise for any deficiency of clinical material brought forward. The difficulty of tracing cases after some years is well recognised; and in addition the recent dislocation of national life deprived me of much material I had hoped for.

If the normal mechanism by which food is passed along the intestine depends upon a complicated and coördinated series of nerve impulses or reflexes (which are as yet imperfectly understood), clinical study of the means by which the delicate adjustment of these impulses can be deranged in disease may, in the future, throw light on many unsolved problems.

Such a hope forms my excuse for attempting such a difficult subject, approached from an entirely different point of view from that of the scientific investigator; and I ask the indulgence of those whose special subjects are trespassed upon. Clinical evidence is usually indirect, often misleading; even so, I hope to make my deductions as impartial as possible.

A. *Normal Intestinal Movements.*

These are of two distinct varieties—peristaltic and rhythmic—and in connexion with these there are three factors to be considered: (1) involuntary muscle, with its faculty of responding to stretching by contraction and its rhythmic properties; (2) sympathetic nerve-supply, the stimulation of which inhibits the contraction of intestinal muscle, except at the sphincters, where the reverse effect is obtained (as shown by Elliott in the case of the ileo-cæcal sphincter); and (3) parasympathetic nerve-supply, whose action is to cause contraction of intestinal muscle, consisting of the vagus for the stomach and small intestine and the pelvic visceral nerves for the large intestine. Both of these end in the junctional tissue of Auerbach's plexus.

The *peristaltic wave* may be regarded as the response of the intestine to the mechanical pressure stimulus of its contents, and differs from the more rapid rhythmical waves in that each contracting segment is accompanied by a synchronous inhibition of the segment immediately distal to it. The contracting segment closes on the intestinal contents, which, following the line of least resistance, are forced into the inhibited segment, when the same process is repeated. This wave of contraction and inhibition travels down the intestine, driving the contents with it, a process assisted by increased rhythmical contractions above (Bayliss and Starling). The rhythmic waves are not accompanied by such an inhibited segment, and their obvious function is to churn up and distribute the contents over as wide an area as possible. They appear to have another function, to which I will refer in a moment.

The mechanism of the true peristaltic wave appears doubtful. Bayliss and Starling suggest that it is dependent on a local reflex in Auerbach's plexus, though this plexus appears to be connected with the termination of the vagus fibres only. Such a local reflex would appear to be unique in character.

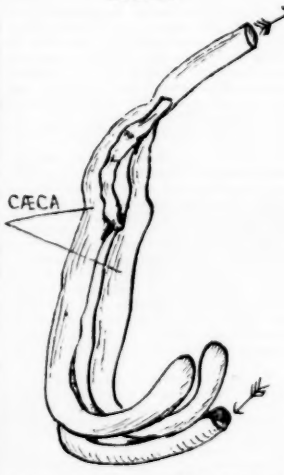
I hope to adduce clinical evidence in favour of the view that it is possible to stimulate mechanically the non-medullated sympathetic fibres in their course. If this is really so, is it not possible that the contraction, elicited by the mechanical stimulus of intestinal contents, is itself responsible for exciting mechanically the intramural inhibitory sympathetic fibres to the segment immediately in front?

Further, the function of Meissner's plexus is unknown, but is it not possible that this gangliated plexus is associated with these inhibitory sympathetic fibres, which receive their mechanical stimulus through its agency? Suffice it that the presence of sufficient contents in the intestine to excite a mechanical stimulus seems normally to be the exciting cause of a peristaltic wave, and perhaps to be associated with a stimulation of the intramural efferent sympathetic fibres in the segment concerned.

A reference to comparative anatomy teaches us that the intestinal tract develops its modifications to suit the character of the food. If we exclude the most primitive forms, where the small and large intestine are in direct linear continuity (the differentiation being characterised by numerous variations from a mere increase in calibre to the development of large symmetrical pouches or cæca), for present purposes we may classify the types roughly into those found in herbivora at one extreme and carnivora at the other. Thus, speaking broadly, in herbivora the food is very bulky, difficult to digest, and contains a minimum of nutritive elements in a maximum of bulk. In such animals the cæcum with appendix is developed and highly specialised as a propelling organ to a marked degree (e.g., the rabbit). It seems evident that the highest differentiation of small from large intestine, evidenced by a rectangular junction of the two, so cuts off the one from the other that a separate mechanism is developed for the initiation of the peristaltic waves along the large bowel. Food, therefore, collects in the large coiled cæcum and appendix until its bulk is sufficient to elicit, by a mechanical pressure stimulus, peristaltic contractions along the axis of the large intestine.

At the other extreme are those types whose food becomes more and more concentrated in a progressively decreasing bulk. In these types it is clear that if distension by bulk were to be the principal factor in initiating peristalsis the food would have to collect for an unnecessarily long period before this would be effected. Accordingly, the necessity for the cæcum and appendix as a propelling organ disappears as we approach these higher types, culminating in man, where we find, as usual, the involution of the appendix characterised by its extreme variability in size and position. This contrast is particularly well illustrated by a comparison of the types of cæca found among carnivorous and herbivorous birds; the former having very short, broad, symmetrical pouches, while in the latter the symmetrical cæca are thin, narrow-necked, and very long. (Huntingdon.) (See Figs. 1 and 2.)

FIG. 1.



Cæca of herbivorous birds (the hen). (After Huntingdon.)

FIG. 2.

Cæca of carnivorous birds (double crested cormorant). (After Huntingdon.)

The gradual involution of the appendix and shortening of the cæcum—i.e., an approach to the human type—is illustrated in the case of some of the monkeys, while with the assumption of the upright position in anthropoid apes the resemblance becomes closer. The more easily digestible food in these higher types is also submitted to a more rapid transit through the bowel after a more complete and rapid segmentation in the small intestine.

These considerations seem to justify the view that, whereas peristalsis may be the main mechanism of propulsion when food is bulky and slow in transit, a more complex mechanism is essential when it is concentrated and largely fluid (at least when it reaches the intestine). Accordingly, in the highest types—i.e., man—we find superimposed a more complex mechanism of rhythmic contractions associated with a specialisation of Auerbach's plexus, which has in recent years been worked out by Professor Arthur Keith and forms the basis of his "nodal theory."

Rhythmic waves of contraction (an inherent property of intestinal muscle) are accentuated in the stomach and small intestine by the vagus; in the large intestine by the pelvic visceral nerves—conjointly termed the parasympathetic—and both terminating in the junctional tissue of Auerbach's plexus. Professor Keith tells me that, though Auerbach's plexus is plentiful in the lower animals, he finds it more highly differentiated in the highest types. This fact seems to me to support the view just expressed that a more complex mechanism of nerve impulses is developing as an adjuvant to the more primitive mechanism of peristalsis as the food decreases in bulk.

There is no need to refer in detail to the now well-known "nodal theory" of Keith; it is sufficient for the moment that the nodal points act as "pacemakers" in their own segments for the rhythmic contractions, which become feebler towards the end of a segment, immediately before the next nodal point is reached. Such points are found to correspond with the areas of normal delay in the passage of food as evidenced by X ray examinations.

In observing rhythmic contractions of the small intestine in the living subject, when opening the abdomen under spinal anæsthesia, I have been particularly struck with the extraordinarily small calibre maintained by the normal tone of the small intestine—a calibre which is markedly diminished by the rhythmic waves (at least, this is striking in some cases), where the diameter of the bowel appears to be reduced roughly to the size of a slate-pencil. Their function as a means of segmenting and distributing the chyme is well known; but I believe they also serve to maintain constant contractions on the intestinal contents, and when these are accumulated in sufficient bulk (i.e., particularly at the normal areas of delay towards the end of the nodal segments), to elicit that mechanical pressure stimulus which initiates peristalsis and forces the contents into the next nodal area, there to be dealt with in a similar manner.

The rhythmic waves may, perhaps, be regarded as "feelers" thrown out to ascertain the pressure, either of a bolus or collection of fluid contents; and when such a wave contracts upon contents of sufficient bulk it will, by its contraction, elicit the pressure stimulus necessary to excite a peristaltic wave which drives them onwards. These rhythmic waves, normally continuous during life, become accentuated with the physiological stimulation of the vagus, which may be regarded as the key which starts the whole complex mechanism working.

The difficulty experienced by physiologists in exciting the normal secretory and motor functions of the vagus by electrical stimulation leads one to believe that these are normally elicited reflexly by afferent impulses. Thus the sight, smell, and taste of food can initiate vagus impulses, both secretory and motor. Normally appetite is responsible, and this is usually attributed to movements of the stomach. It is difficult to see how movements of the stomach can be responsible for the sensation of appetite, since they are perhaps most marked when the stomach is full and hunger is appeased! It is, at least, not impossible that the engorgement of gastric and pancreatic glands, during the resting period, initiates an afferent vagus stimulus responsible for the sensation of hunger, and eliciting the efferent response to glands, gastric and intestinal muscle. Thus gastric movements would be coincident with, but not responsible for, the sensation of hunger. Such a view would be supported by the increase of hunger during cold weather, when surface vessels are contracted and deep structures proportionately engorged. A somewhat analogous example may perhaps be found in the afferent vagus stimulus provided by the fully oxygenated alveolus of the lung. I think there is clinical evidence in support of this view. In any event, we know that active gastro-intestinal movements and secretions are initiated by such agencies, and that this increased activity extends over the whole intestinal tract, including the large bowel, as clearly demonstrated by Hurst.

In the case of the large bowel, however, the contents being largely semi-solid or solid, the more complex rhythmic mechanism appears to be less striking, and movement of contents more dependent on peristalsis. Here the disappearance of the cæcum and appendix as an initial propelling organ is compensated by the development of a well-marked nodal point at the ileo-cæcal junction (Keith), which becomes its substitute as "pacemaker" for the ascending colon. Thus the accentuated rhythmic contractions, initiated by the vagus when food is taken into the stomach (or through the lumbar centre during defæcation), will affect the ascending colon also, and the rhythmic contractions on to semi-solid contents of large bulk will elicit strong peristaltic waves resulting in "mass movement" (the "gastro-colic reflex" of Hurst) —such a process being invigorated at each succeeding nodal segment.

The so-called "antiperistalsis," or backward movement of contents, in the colon may perhaps be explained by ordinary peristaltic contractions (evolved by the mechanical stimulus of bulky contents alone), which are too feeble to initiate a mass movement until the accentuation of the mechanical stimulus by the sudden pressure of additional food and an increase in rhythmic contractions. These feeble peristaltic contractions may be sufficient to drive the contents on a little way and allow them to slip back again, thus causing a backward and forward movement until the accentuation of the rhythmic waves initiates a mass movement onwards. Mass movement is also initiated by the act of defæcation (Hurst), the accentuated rhythmic waves being started by a reflex stimulation of the parasympathetic through the lumbar centre. It appears that, as we pass over the intestinal tract, the gradual change of the contents from fluid to solid is concomitant with a gradual decrease in the domination of the parasympathetic, a corresponding increase in the domination of the sympathetic (an essential factor in peristalsis), and also by a corresponding decrease in the rapidity of transit—in fact, a gradual approach to the predominating mechanism in herbivora. In other words, there is a varying adjustment between the opposing mechanisms of contraction and inhibition in different parts of the gastro-intestinal tract according to the character of the contents, resulting in the variation in the method and rapidity of distribution and propulsion already noted. Such a gradual reversal of the dominant innervation seems to me to be supported by a consideration of the secretory mechanisms. These are somewhat analogous in this respect: that whereas vagus stimulation is responsible for the initial secretion of gastric and probably pancreatic juice, the continuation of such secretions is mainly chemical. Langdon Brown has emphasised the fact that as we descend the alimentary canal the nervous factor in exciting secretion gradually gives way to the domination of the chemical. So that this excitation, initiated as a nervous impulse, is carried on in the stomach by gastric secretin from the pyloric glands (Edkins); in the pancreas by duodenal secretin, excited by the action of acid gastric chyme on the duodenal prosecretin (Bayliss and Starling); and in the small intestine by the pancreatic secretion and the mechanical stimulation of food (Starling).

In two such closely allied functions (secretory and motor), if the mechanism of one gradually changes to meet food requirements in its different stages, it should not be surprising to find a concomitant reversal in the other.

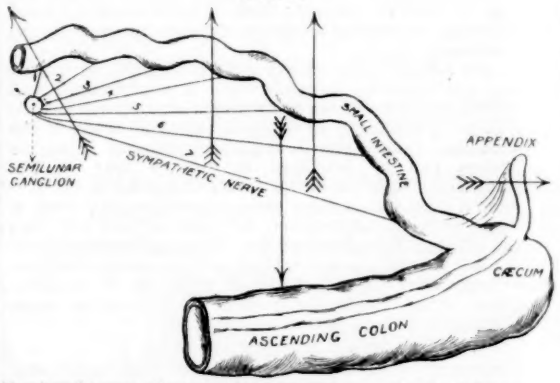
The predominance of the sympathetic or inhibitory innervation and the comparative ease with which its impulses can be excited in the lower portions of the intestinal tract play, I believe, an important part in the causation of disease.

B. *Pathological Derangement of the Normal Intestinal Mechanism.*

Lesions of the mesentery.—The difficulty of watching normal intestinal movements in man has been due to the fact that such movements cease immediately the abdomen is opened. This phenomenon has been erroneously attributed to the mere exposure of the viscera to the air. That this is not true is proved by the continuation of such movements when the abdomen is opened under spinal anæsthesia. This proves that the inhibition of intestinal movement on opening the abdomen is due to a reflex sympathetic stimulation, and it occurs even before the abdominal cavity is exposed. This is well illustrated during operations for acute obstruction. During the course of a study into the nature of surgical shock, Dr. Parsons and I made numerous blood pressure observations during abdominal operations in man and animals. We found that while local vascular effects were masked by the dominating centripetal impulses, if these were satisfactorily excluded, local changes could be well studied.

Thus, whether general or spinal anæsthesia was employed, no obvious blood-pressure variations could be attributed to manipulation or crushing the bowel wall—a fact which harmonised with its well-known "insensitiveness." On the other hand, if centripetal impulses were excluded, by operating under spinal anæsthesia, a marked rise of blood pressure arose from manipulation of, or traction on, the mesentery. Such a rise is due to a mechanical stimulation of the efferent sympathetic vaso-constrictor nerves passing through the area involved, and was proportionate to the violence of the stimulus. We found, further, that traction of the mesentery downwards induced a larger rise of blood pressure than upward traction, which indicated (Fig. 3) that the extent of the

FIG. 3.



Numbered nerves stimulated by traction on mesentery in different situations. (Tyrrell Gray and Parsons.)

phenomenon, due to vaso-constriction, was proportionate to the number of efferent fibres mechanically stimulated. Thus, the higher up manipulations were carried out, the greater was the blood pressure excursion, until finally the greatest rise of pressure in animals was elicited by mechanical stimulation of the semilunar ganglia themselves. One fact which struck us was the domination of the sympathetic vaso-constrictor fibres in such stimuli, vagus effects being only observed during traction on the cardiac end of the stomach.

I was impressed at that time by the possibility that the phenomenon observed in relation to the blood-vessels might equally well apply to the intestinal muscle, possessing an analogous innervation. Accordingly, a close observation of the effect of operative manipulations under spinal anæsthesia showed that, whereas manipulations of the bowel wall alone inhibited only the tone of the section involved, manipulations of the mesentery inhibited the whole area supplied by the mesenteric nerves so stimulated. As in the case of the blood-vessels, so in the case of the bowel movements, traction downwards will inhibit a wider area than traction upwards, a larger number of nerves being involved (Fig. 3). Finally, traction and manipulation of the upper mesentery inhibits the tone of all the small intestine. We know that intestinal inhibition results from inflammatory lesions of the peritoneum, particularly the mesentery; if the possibility of mechanical stimulation to inhibition be granted, a wide field of surgical study is opened up.

Inflammatory Inhibition.

General peritonitis.—An extreme example of widespread intestinal inhibition from this cause is to be found in general peritonitis. Here the presence of pus constitutes the stimulus to the whole of the mesentery, and provides a constant irritating excitation of the efferent sympathetic inhibitory fibres to the whole intestine. The so-called "paralytic ileus" resulting is not really paralytic, but is due to continuous *active* inhibition of intestinal movement. It is to be regarded as the natural mechanism for insuring immobility and rest to an inflamed and injured structure—one of the first natural principles to be imitated in the treatment of inflammation.

Here a recognition of the nerve impulses involved guide us in the treatment of peritonitis. For, if the active efferent inhibition (persistent as long as the lesion is active) is protective in character, such an intestinal immobility is to be assisted and imitated by every means. The resulting afferent stimuli are a source of danger to the synapses of the vital centres—their mitigation is therefore indicated.

These principles largely form the basis of the Fowler treatment, which further aims at the gravitation of infective fluids to the pelvis, where the smallest number of afferent mesenteric and peritoneal nerve fibres will be stimulated. To the appreciation of these factors is largely due the marked improvement in the results of the treatment of peritonitis in the last decade. Nerve impulses associated with peritonitis can perhaps better be illustrated by considering a local lesion, and appendicitis may be chosen as an example.

Acute appendicitis.—If the comparative insensitiveness of the bowel wall, as demonstrated both by operations under local anæsthesia and by blood-pressure records, be borne in mind, the variability in presence, absence, or severity of symptoms accompanying the onset and progress of acute appendicitis is curious. It is common experience that the symptoms often bear little relation to the lesion. One feature has struck me forcibly for some years—namely, that when the appendix is extra- or retro-cæcal in position the onset of vomiting and constipation is not so pronounced and is often absent. This must be a common experience. Indeed, it is not uncommon to find an extra- or retro-cæcal appendix abscess unassociated with any definite symptoms except discomfort, malaise, or a little pain, even when the local lesion is severe. A perfectly free appendix, suddenly and severely infected it is true, cannot induce initial severe pain, vomiting, and constipation immediately from involvement of the adjacent peritoneum and mesentery; but it will then usually be found at operation that the mesentery is thick, œdematous, and thrombosed; and I believe that in this type the primary lesion is usually a thrombosis of the mesenteric vessels arising from acute blood infection, the appendix lesion being secondary. Thus the inflamed, free, or adherent appendix stimulates its own, and the adjacent ileal, mesenteric nerves in the ileo-cæcal region, as well as those of the peritoneum, just as did general peritonitis in the case of nearly all the mesenteric nerves. (The retro-cæcal appendix is obviously much more limited in this respect.) The result of such an inflammatory stimulus is again both efferent and afferent.

The stimulus to the *efferent* nerves is evidenced by a protective inhibition of the bowel supplied by the sympathetic nerves involved—i.e., the ileo-cæcal region, which would in itself delay the passage of contents, inhibit the ileo-cæcal nodal point of Keith, and so lead to constipation.

The stimulus to the *afferent* ileo-cæcal nerves evolves reflexly from the central nervous system a general efferent sympathetic stimulation which reacts as follows: 1. Inhibition of all the intestinal muscle, particularly the large bowel, which will accentuate the degree of constipation initiated by the local inhibition. 2. With the inhibition of the intestinal muscle and the pyloric end of the stomach will be associated the spasm of the pyloric and ileo-cæcal sphincters. 3. The stimulation of the splanchnic nerves causes an excessive secretion of suprarenal extract which still further inhibits the intestinal muscle and accentuates spasm of the pyloric and ileo-cæcal sphincters. Also the suprarenals being antagonistic to the pancreas the secretions of this gland will be diminished and probably to some extent intestinal secretions also. *Thus pylorospasm is further accentuated.* 4. That there is an associated violent afferent vagus stimulus is evidenced by the initiation of vomiting through its efferent response. Here the sympathetic stimulus does not mask the vagus because the cardiac portion of the stomach, which is probably not inhibited by sympathetic fibres, can contract uninfluenced by such impulses. This contraction of the cardiac end, when associated with sympathetic inhibition of the pyloric end and a spasm of the pyloric sphincter, explains the persistence of vomiting while the irritation of the local lesion is most active.

Associated spasm of the pylorus with intestinal lesions was demonstrated by Murphy and Cannon, who pointed out that after operations on the intestine the pylorus remained closed for a variable period, depending on the situation of the trauma. This reflex pylorospasm is again clearly a protective nervous mechanism to prevent the intestines functioning as long as their active inflammation calls for complete rest.

How far the general sympathetic stimulus inhibits the secretory functions is doubtful. That it does so through the adrenals in the case of the pancreas is probable; and in so far as secretion of succus entericus is influenced chemically by pancreatic secretion, the intestinal glands may be similarly affected. Clinically gastric secretion is increased.

The association between the appendix and the pylorus has long been a recognised clinical fact, and the term "appendix dyspepsia" is perhaps misleading. That the appendix has in itself any evident effect on the stomach I do not for a moment believe—clinical and experimental evidence is against such a view, and clinical facts adduced are too inconstant—but that the pylorus is affected reflexly in the manner shown by lesions involving the meso-appendix, the ileal mesentery, or the parietal peritoneum, from inflammation of the appendix, seems certain.

I have taken the appendix as an example because of its frequency, though the same considerations naturally apply to lesions of a similar character elsewhere. For example, the colicky pains caused by subacute inflammation of mesenteric glands is probably due to direct inhibition of the segment of bowel supplied by the irritated efferent sympathetic fibres. I have entered in some detail into the mechanism of the nerve impulses responsible for the symptoms of acute appendicitis because it has a distinct bearing on the next aspect of my subject.

Mechanical inhibition.—I am now anxious to show that an analogous inhibition may result from mechanical stimulation. During operations performed for the relief of acute obstruction under general anæsthesia every surgeon is familiar with the immediate protrusion of distended bowel through the incision. Such patients are usually verging upon the second or depressor stage of shock, and this phenomenon is usually accompanied by a varying degree of collapse. That this is not due to exposure to air or cold is shown by the fact that no such blood pressure variations are observed under ordinary conditions, nor is there the same tendency for the intestines to protrude.

It might be assumed that such a sudden collapse is due to the sudden release of intra-abdominal pressure. That this may be a contributory factor cannot be denied; but that it is not the principal factor was shown by Dr. Parsons and myself from a study of the simultaneous blood pressure, pulse and respiratory tracings in artificial distension of the bowel during sigmoidoscopy. We stated—

1. That the vaso-motor variations are not due mechanically to increased pressure in the abdominal cavity. For the pulse and respiratory rate are increased instead of being slowed, as would then be the case.

2. That direct stimulus to the bowel wall is not responsible. For our experiments have repeatedly demonstrated that manipulation of the bowel wall is without any ascertainable effects on the blood pressure.

3. That distension of the intestine induces tension upon the mesentery, and from the stimulus to this structure, with its contained nerves, arises the impulse to the vaso-motor centre; to this the rise in blood pressure is responsible. The stretching and stimulation of the mesenteric nerves during intestinal distension has, we believe, an important bearing on intestinal activity, blood-supply, and shock (from afferent impulses) in clinical medicine and surgery.

Again, in experiments on animals the way in which distended intestines stand away from the root of the mesentery is striking. There seems to be considerable evidence that distension of the intestine, beyond the normal limits at any rate, does exert a definite traction on the mesentery; and this is only to be expected on mechanical grounds if the length of its vertebral attachment is compared with that of the intestinal. Such tension is naturally modified by the support of the abdominal wall, though it cannot be completely controlled when the intestines have free play for their movements. I have already referred to vaso-motor and inhibitory phenomena resulting from inflammatory lesions of and experimental and operative traction on the mesentery. I have also tried to show that such traction may occur from intestinal distension. The results of the application of these principles in practical surgery has convinced me that there are good grounds for such an assumption, and therefore I now propose to apply these considerations to the clinical study of visceral disorders.

The Development and Rôle of Mesenteric Bands.

In recent years much attention has been focussed upon various mesenteric bands found with considerable frequency in certain situations. Sir W. Arbuthnot Lane first described them as the crystallisation of lines of force in an attempt to support the viscera—a mechanical sequel to the assumption of the upright position. An inflammatory origin has been suggested, but they are too constant in form and position to warrant this view. That these develop to compensate mechanical conditions during the lifetime of an individual is most unlikely; for Professor Keith has emphasised their existence in the newborn infant, while it is not unusual to find them in varying degrees during operations on quite young children.

The evolution of the large bowel in man from the types found in quadrupeds reveals its gradual *fixation* in the former as a striking feature. This is as true embryologically as it is phylogenetically, and the fixation takes place by a gradual fusion of the mesentery; this is less complete in some situations than in others. If we regard the present arrangement in man as transitional between that of the quadruped and the final adaptation to the upright position, we should expect to find considerable variation in the extent and method of fixation—for variation in type is one of the marked features of transition. There is clinical evidence to support such a view, for almost every degree of mobility can be observed in man. At the one extreme are encountered occasional instances of a perfectly free colon with a long mesentery throughout. I have twice encountered this condition, and in one—a little girl of 8 years suffering from acute obstruction—a volvulus of many complete rotations was found, involving practically the whole of large and small intestine. The appearances were those of nearly the whole intestine supported on a "twisted pedicle." When unravelled the arrangement approached that found in the dog.

Such cases are to be regarded as extreme types of atavism. At the other extreme are the well-fixed colons with complete mesenteric fusion in ascending and descending colon, shortened mesentery to a high-lying transverse colon, shortened and well-fixed cæcum, firmly supported flexures, and a diminished loop to the pelvic colon. Between these extremes are found all transitional types in considerable variation, affecting one or every portion of the large bowel. For instance, failure of mesenteric fusion and extreme mobility may affect the cæcum and ascending colon only, or together with a large loop to the pelvic colon; or both these may be associated with a pendulous and redundant transverse colon.

Is it not possible that these bands represent variations in the process of mesenteric fusion and fixation in transitional types, in which occasional spurious or anomalous types of fixation may be observed? Again, the very variability in size and anatomical relationship of the appendix is an indication of its gradual involution, and I believe this to be true to some extent of the cæcum also. For on several occasions I have encountered a cæcum markedly enlarged *below* the ileo-cæcal valve and hanging well into the pelvic cavity, in subjects where the mesenteric fusion was elsewhere advanced. Such cases would seem to be a reversion to the type of long cæcum. The most reasonable view seems to be that such bands are developmental and represent spurious efforts at fixation of the large bowel in transitional types.

Situation.—The commonest varieties have been described by Sir Arbuthnot Lane. The most important may be enumerated—

1. Ileo-pelvic, producing the so-called Lane's kink. This requires no detailed description.

2. Jackson's membrane, which, attaching the cæcum and ascending colon to the lateral abdominal wall by a membranous sheet, sometimes develops additional thickened "constricting" bands.

3. Gall-bladder, pylorus, and duodenum. All varieties of bands may arise from the fundus, internal aspect, and neck of the gall-bladder; from the first and second parts of the duodenum; and from the pylorus. These bands extend along the transverse mesocolon to its junction with the proximal and middle third of the

transverse colon; they may pass down to gain attachment to the external aspect of the ascending colon and sometimes the cæcum.

4. Membranous attachment of the cæcum and ascending colon to the proximal third of the transverse colon—this being often associated with the preceding type (3).

5. Similar attachment of the two limbs of the splenic flexure.

6. Pelvic mesocolon. The bands in this situation have been emphasised by Sir W. Arbuthnot Lane.

The first and last varieties tend, in the most advanced instances, to involve the antimesenteric border of the bowel and produce a rotation round its longitudinal axis.

There are, further, some rarer anomalies to which I should like to refer in passing.

7. Membranous adhesion of the transverse mesocolon to the anterior abdominal wall in its distal quarter or third, extending to the splenic flexure. This I have observed on three or four occasions associated with a definite prolapse. It is not likely to be seen unless looked for, owing to its remote situation.

8. Isolated round bands, the size of a stout silk ligature, are occasionally found passing from the gastro-hepatic omentum anteriorly to the stomach to the transverse mesocolon. (In one instance such a band passed from the anterior abdominal wall near the diaphragm downwards and backwards to its attachment to the anterior surface of the middle of the stomach, and was not associated with an ulcer so far as could be determined.) This was quite free, isolated, and smooth, and was associated with long-standing dyspepsia. The scar of an old duodenal ulcer was also present. In another case there were two such bands, firm, tough, and unaccompanied by any sign of local inflammation, passing across the stomach vertically from the gastro-hepatic omentum. When the transverse colon was pulled downwards both these bands markedly indented the anterior gastric wall, one over the pyloric antrum and the other about two inches to the left. Their removal, together with that of a "controlling appendix," established a cure of somewhat severe gastro-intestinal symptoms of long duration. The operation was performed a year ago. It is difficult to explain the rare existence of these bands; and it is rather tempting to attribute them to pre-natal agencies.

Gastro-intestinal Symptoms Associated with "Transitional" Bands.

Ileo-pelvic band ("Lane's kink").—Doubt has often been expressed as to its pathological significance, but its association with gastric and duodenal ulcer and with gall-stones is of too frequent occurrence to be ignored. Sir W. Arbuthnot Lane holds the view that the result of such bands is a mechanical obstruction—a view shared by many others. That this may be so occasionally in the extremest examples (when the antimesenteric border of the terminal ileum is fixed to the pelvic brim, and the gut rotated on its long axis) cannot be denied; but that such a view explains ileal stasis in the majority of cases is improbable for several reasons. For instance:—

1. The acute kinking, distortion, matting, &c., of small intestine resulting from peritonitis, trauma, &c., rarely induces any obvious delay evident under X ray examination.

2. In cases where repeated warnings have culminated in acute small intestine obstruction necessitating urgent laparotomy previous X ray examinations have proved of little help. In one such case previous X ray examination revealed no definite stasis, when acute attacks of pain of the severest character, lasting for over 20 years after hysterectomy, culminated in acute strangulation of the lower ileum for which I operated. Indeed, this is a common experience, and many instances can doubtless be quoted.

3. Even in a partial mechanical obstruction the gut proximal to the obstructed point is hypertrophied, while beyond this point it is always collapsed. Careful routine examination has never revealed any such hypertrophy above, or collapse below, the lesion; indeed, the ileum below the "kink" is usually rather "ballooned."

4. Not only is the ileo-pelvic band associated with ileal stasis, but also with delay in the cæcum and ascending colon (as demonstrated by X rays) eveu when the appendix is healthy. In extreme cases the bismuth may remain in considerable quantity in the cæcum and ascending colon after the rest of the intestines are entirely clear. This cannot be explained by partial mechanical obstruction.

5. Congenital inversion of the cæcum.—This condition is not infrequently encountered, the cæcum (usually of the infantile type) lying external to the ascending colon. In the extremest examples part or nearly all of the ascending colon is involved in the inversion. In such cases the terminal ileum reaches the cæcum by becoming more or less retroperitoneal and passing behind the ascending colon. I have twice encountered this condition in the extreme form and both were instructive. In one case, F., aged 35, almost the whole ascending colon was inverted, the terminal ileum being firmly embedded behind the colon in its course to the cæcum. Previous X ray examination showed marked ileal stasis. In the other, M., aged 51, repeated attacks of partial obstruction led to laparotomy. Dr. A. C. Jordan had previously demonstrated by X rays the inversion of the cæcum, which was confirmed at operation as an extreme instance, closely resembling the preceding case. In his case the ileum, proximal to its retroperitoneal passage behind the colon, showed the marked hypertrophy and dilatation associated with chronic or intermittent obstruction. But in this case no ileal stasis whatever was demonstrated by X rays.

6. Some kinking of the bowel is a normal feature at the natural points of support (i.e., duodeno-jejunal flexure, hepatic and splenic flexures), and is not necessarily associated with any pathological delay, even if acute. It is most noticeable that at such points the supporting bands or ligaments are attached to the viscus itself, never to the mesentery.

Clinical study of Lane's kink seems to show: (*a*) that "ileal stasis" is not due to mechanical obstruction; (*b*) that mechanical ileal obstruction must be all but complete before it can be demonstrated with certainty by X rays.

I have long held and acted upon the belief that the pathological effect of this band (and the "controlling appendix") was twofold.

(1) In the upright position the terminal ileum leads down to the pelvis, and the mesentery can be definitely shown to be shortened in this position. The bowel thus induces a tension on the mesentery in this situation, and mechanically irritates the efferent sympathetic nerves distributed to the ileo-cæcal region, thus inhibiting their normal rhythmic and peristaltic contractions and accentuating the normal ileal delay. (Fig. 4.) Together with this inhibition

FIG. 4.

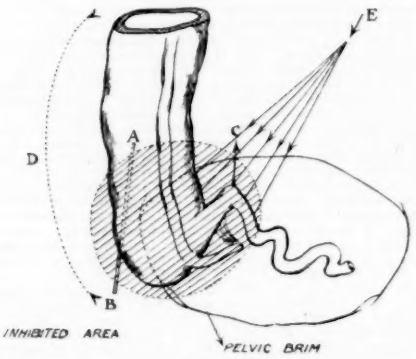


Diagram of efferent ileo-cæcal inhibition. A-B, Opening in peritoneum for cæcopexy. C, Pull on mesentery by Lane's kink. D, Area inhibited directly by secondary inhibition of ileo-cæcal nodal point. E, Lines of stress on efferent mesenteric sympathetic fibres.

there is also a concomitant spasm of the ileo-cæcal sphincter (Elliott). Such an efferent sympathetic stimulus will further inhibit the *ileo-cæcal nodal point of Keith* and thus derange the "pace-maker" for the ascending colon; thereby causing the associated delay at this segment already referred to, by a diminution of the rhythmic waves leading to delayed excitation of peristalsis. This is analogous to the inflammatory inhibition referred to in acute appendicitis. The possible criticism that such a stimulus will equally affect the vagus fibres does not hold for three reasons: (*a*) The difficulty experienced by physiologists in stimulating the vagus in its efferent course; (*b*) the increasing domination of the sympathetic, already referred to, as we pass down the intestine; and (*c*) such sympathetic domination was shown in this region by Dr. Parsons and myself so far as it affected the vaso-motor system.

(2) Such an inhibition of the ileo-cæcal angle may possibly be excited by the peristaltic wave itself. I once had the opportunity of watching an intussusception form in a loop of bowel in my hand, when operating on an infant for this condition under spinal anæsthesia. The extraordinary degree of ballooning of the inhibited segment preceding the contraction was a striking feature.

I have endeavoured to show that extreme distension will stretch the mesentery—is it not possible that, in the presence of such a "kink," on the arrival of a peristaltic wave at the area of the shortened mesentery, the widely inhibited segment may by its distension produce the drag on the sympathetic nerves that stimulates them to excite inhibition of the bowel? Even if such an inhibition is slight or partial it would tend to become progressive. Further, observations during operation have confirmed this inhibitory view. For I have noticed carefully that if the bowel be greatly drawn upon in the neighbourhood of a Lane's kink, so as to put it on the stretch, the terminal ileum becomes definitely ballooned, and the cæcum also gets distended.

If the efferent nerves are so stimulated mechanically the same effect will be observed in the afferent nerves. If it be granted that a summation of small "niggling" stimuli may in time achieve the same effect as one short violent one, the same result would be expected as in experimental or operative trauma to the lower ileal mesentery. Thus, not only should an efferent inhibition of bowel result, but also afferent stimuli exciting an efferent sympathetic response. This will result in pyloric spasm, gastric stasis, &c. (so-called "Appendix dyspepsia")—a sequel proved by X rays. Such a general, constantly repeated sympathetic reflex will not only so affect the pyloric sphincter, but will also produce a general partial intestinal inhibition; also inhibition (and so distension) of the gall-bladder, where innervation is similar to that of the intestine. The constipation, occasional pain on defæcation, and dyspeptic symptoms, associated with ileo-appendicular lesions, are fully explicable on such a view, while in their frequent association with gastric and duodenal ulcers, gall-stones, &c., such bands may at least constitute one of the many ætiological factors, primarily through constant direct and reflex intestinal inhibition.

The "controlling appendix."—I have always regarded such an appendix as one which, either by itself or through the medium of adhesions to the ileal mesentery, is capable of inducing a similar inhibitory stimulus. The mechanism of the Lane's kink and the "controlling appendix" may be thus regarded as one and the same—i.e., *inhibitory* to the normal "myenteric reflex" in the terminal ileum and the cæcum. It is clear that if the healthy human appendix still retains some of its pristine function as a "propelling organ," the controlling one not only loses such a function but actually interferes with the peristaltic and nodal mechanism of propulsion. There is thus a very simple explanation of the relief of constipation and dyspepsia in many cases where an appendix showing little disease has been removed—i.e., the release of a mutual mesenteric drag occurring during movements of the intestine.

Pelvic mesocolon.—The explanation of the pathological significance of these bands is entirely analogous to that of the ileo-colic. I have never been able to observe kinking sufficient to obstruct through their agency, and I cannot but regard their mechanism as purely inhibitory to the normal contractions of pelvic colon. Such a view will account for at least one aspect of dyschezia; for the initial act of defæcation, starting the movements of the colon, will result in tension on the pelvic mesocolon by the bands, and an inhibition of the completion of the act.

Jackson's membrane, chole-duodeno-colic bands.—The mechanism of these I believe to be largely mechanical, since they are usually unattached to the mesentery proper.

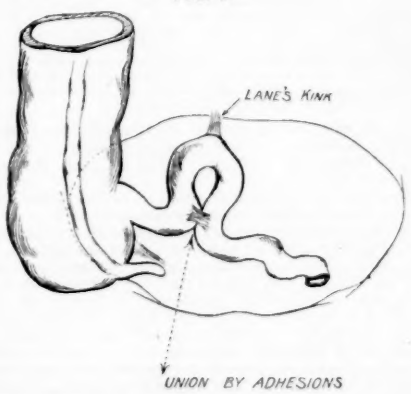
Surgical treatment.—In the treatment and after-results lies such practical proof as I am able to adduce in support of these views. The simple division of such bands obviously invites a recurrence or worse. I have, therefore, for many years consistently practised free transverse division (until the bowel is quite free) with a suture of the raw surfaces longitudinally—i.e., a plastic lengthening of the mesentery of the simplest type. The numerous instances in which this has been done as a routine during the course of another operation could clearly afford little proof. I have therefore endeavoured to trace some of those cases where the routine removal of an apparently normal appendix cannot have been of influence, and nothing further beyond a plastic lengthening of such bands was done. I have found 23 such cases, where, so far as I could determine, there was nothing else abnormal in the abdomen. In 20 of these the terminal ileum was involved, and in 3 the pelvic mesocolon.

Ileo-pelvic cases.—The symptoms complained of were: flatulence, distension, and indigestion in 8 cases; "water brush" or "heartburn" in 2; biliousness and lassitude in 2. Pain was a prominent symptom in 10 cases; the pain was general or right-sided in 8, epigastric in 1, and in the left hypochondrium in 1. Constipation was a prominent feature in 9 cases. In one of them it is described as "*markedly progressive*" (this case was cured 5–6 years afterwards). It was absent in 6 cases. The results of this simple operation apply to periods of one to eight years afterwards. From 8 I have been unable to get any reply, though one of them had some flatulence three months after operation. Of the 12 cases who have replied to my inquiries, 10 describe themselves as an unqualified cure; one as a cure with occasional discomfort; one as much relieved. These figures, few as they are, represent at least 83 per cent. of cures from this simple procedure. In only one of these cases was the raw surface so large that an omental graft was used to cover it up.

In support of the benefit of this operation may be quoted one case from a different aspect—namely, that of a man, aged 31, whom I operated upon for acute appendicitis in 1912. At the time of the appendicectomy a marked "Lane's kink" was noted, but was not released owing to sepsis. This patient writes me that he has no return of his acute symptoms, but suffers from indigestion, for which he has been treated.

There is one interesting anatomical feature in extreme cases—namely, that the two limbs of the tethered intestine occasionally become adherent to each other about 1½ inches from the kink, thus transforming a U into an O. (Fig. 5.) This condition I have

FIG. 5.



encountered on at least two occasions. Even here there was no evidence of hypertrophy on the proximal or collapse on the distal side of the lesion.

Pelvic mesocolon.—The two cases which I have been able to trace 18 months and six years respectively after a plastic lengthening of the meso-sigmoid are of sufficient interest to justify a separate report of each.

(*a*) F., aged 21. A finely built, well-nourished, athletic girl, complaining of obstinate constipation, "indigestion," flatulence, and a feeling of great distension, for which she had received treatment. Some bands from the transverse mesocolon to the neighbourhood of the cystic duct were divided transversely and sutured longitudinally; but, though this may have influenced her flatulence, I did not think it could have exerted much influence on her constipation. There was no visceroptosis. The most marked feature was the aggravated form of the "sigmoid" bands. These were divided transversely and sutured longitudinally. An apparently normal appendix was removed. This girl is now "absolutely and entirely well" 18 months later.

(*b*) F., aged 17. This girl was sallow, thin, and unhealthy-looking, and complained of obstinate constipation; the bowels were often not opened for ten days at a time. On exploration the cæcum was slightly pendulous but was not sutured. An apparently normal appendix was removed, and there was, so far as I could determine, no other abnormality in the abdomen except extraordinarily pronounced "sigmoid" bands. On dividing these transversely a large raw surface (about the size of the palm of the hand) was left, which extended well on to the lateral wall. I could not help being struck with the tension which must have been exerted by these bands, when their release left such a large gap that I could not close it by any plastic method. In this case I covered the raw surface with an omental graft. Before she was allowed up the bowels acted easily and regularly. The parents write to me she died "from other causes" last March; but that for the six years after her operation (until her death) the procedure had proved "entirely successful."

It can hardly be denied that in these cases the bands described were exerting pathological effects. Further, I am fully aware of the numerous factors entering into a surgical cure; but while bearing such possibilities in mind, I am unable to attribute the cure in the cases I have quoted to any other agency than the lengthening of the contracted mesentery. If I have succeeded in showing that their pathological effect on intestinal motor function is very rarely mechanical, it must be nervous or inhibitory in character. And again, if their harmful effects can be cured by so simple a procedure as plastic lengthening, does not this constitute indirect evidence that the mere traction exerted on the intestinal mesentery can stimulate intestinal inhibition?

Experimentally I have repeatedly tried to produce such stasis by kinking and distorting the mesentery in animals; but I never succeeded. Also it is curious that stasis associated with such bands is only to be observed from the lower ileum downwards. If the inhibitory view of stasis is accepted does not this support my conception of the increasing domination of the sympathetic, as opposed to the parasympathetic, as we pass down the intestine? Sir Arbuthnot Lane was the first to realise the predominant influence of the colon in visceral disorders, and to his genius must be attributed the stimulus to investigation in recent years. But this increased susceptibility of the terminal ileum and large intestine to mechanical nervous efferent inhibition constitutes, I believe, the main reason why these parts of the alimentary canal are so often the primary factor in the ætiology of gastro-intestinal disorders. A study of intestinal inhibition, however, is naturally not confined to its association with mesenteric bands. Having endeavoured to establish a principle I am anxious to enlarge my study by its application to visceral prolapse.

Disorders Associated with Inhibition of the Colon.

True visceroptosis, or Glenard's disease, is characterised by a prolapse of the viscera associated with a laxity of, and deficient support afforded by, the abdominal wall, including the pelvic floor. In extreme cases such a prolapse involves all the abdominal organs. The symptoms (often distressing) are familiar to all; but much of the obscurity in regard to their ætiology has arisen from the difficulty of discriminating between cause and effect, on the one hand, and from the erroneous impression that actual position in the abdomen can in itself influence intestinal function. That visceroptosis is frequently associated with profound stasis and its distressing sequelæ is common knowledge; but it is an everyday experience to find this condition pronounced in people who are in the most perfect health.

I believe the various degrees of prolapse to represent variations in a gradual transition from the type found in quadrupeds to the final position, in accommodation to the erect posture, altering food requirements, and so forth; and that the condition is in no way to be regarded as pathological. Subjects with a mobile colon, however, are definitely more liable to visceral disorders, and such anomalies should be regarded as a predisposing factor.

For a true appreciation of the pathological position of the various forms of prolapse there are two distinct factors to be realised: (*a*) Predisposing conditions; (*b*) true ætiology.

(*a*) *Predisposition* consists in the various degrees of congenital mobility and prolapse of the large bowel which invite a derangement of mechanism if a sufficiently powerful ætiological factor should supervene. In the absence of such an ætiological factor the condition is compatible, as we know, with perfect health; and I repeat there is no satisfactory evidence that prolapse of the stomach, transverse colon, or cæcum, &c., is in itself to be regarded as pathological. It is everyone's experience that this condition, even in exaggerated form, can be unaccompanied by any symptoms whatever. The most recent case under my observation is that of a girl of 25 years, perfectly healthy until after her first baby was born two years ago. Since then she has complained of pain, becoming gradually unbearable, in the right side after standing or walking for any length of time. X ray examination reveals an extreme degree of sphlanchnoptosis. But the point I wish to emphasise is that though there is a gastric stasis so extreme as to simulate partial obstruction (together with a marked increase of peristaltic waves over a prolonged period of at least nine hours) this patient has never had a symptom of constipation, dyspepsia, flatulence, or epigastric discomfort. Though the abdominal wall is apparently excellent and the pelvic organs are normal, it seems clear that, pronounced prolapse having been compatible with perfect health for 23 years, the ætiological factor in the onset of symptoms was the alteration of the abdominal wall and pelvic floor after childbirth.

(*b*) *Ætiological factors.*—Abdominal and pelvic support. In the case just quoted I have endeavoured to exemplify the view that visceroptosis is not per se pathological, but may become so on small provocation, which would be without influence in a subject with a well-attached colon. That the abdominal wall and pelvic floor are important factors is certain. At least one of my cases on whom I performed cæcopexy some years ago remained perfectly well for a year, when symptoms gradually recurred after childbirth. This case is instructive and will be studied later. But the view that the abdominal wall can alone be responsible for the distressing train of symptoms associated with some extreme instances of prolapse cannot, I submit, be adequately supported by evidence, as I hope to show, though it certainly can initiate them. There are numbers of multiparæ, for instance, with marked visceroptosis and poor

abdominal walls who have hardly a complaint; while, on the other side of the picture, we see numerous instances of unmarried girls with well-developed abdominal muscles complaining of severe and progressive symptoms.

Intestinal inhibition.—Numerous explanations have been given to account for the marked stasis often associated with prolapse. None of them are satisfactory. That the driving power of the colon is impaired is a postulate—how it is impaired is the problem. That mechanical obstruction occurs through kinking of the lumen is, I submit, quite an untenable hypothesis for many reasons:—

(1) Such a mechanical obstruction should produce hypertrophy on the proximal side. This is never seen; on the contrary, the bowel becomes very thin and ultimately inelastic. (This feature further negatives any possibility that the cause of stasis is primarily due to stretching of the intestinal muscle by bulk of contents, &c., for the normal intestine responds to increased work by hypertrophy.)

(2) The most marked kinks at hepatic and splenic flexures are often seen in those with a well-supported colon when there is no stasis at all. Some of the most acute flexures I have seen in a considerable number of personal observations under X rays, have been in people who had no stasis or constipation—and I have repeatedly verified this at operations. Recently such an extreme kinking at the splenic flexure was observed in a patient, in whom all the bismuth was evacuated within 24 hours. At a subsequent operation I found the X ray observations verified; and the two limbs of the splenic flexure were firmly united over a considerable distance, thus accentuating the kink.

(3) It is a most significant feature that, when the normal flexures of the alimentary canal are supported by ligamentous attachments, these are invariably attached to the bowel wall and never to the mesentery.

Such reasoning led me to the conviction that the normal support to the colon should be provided by attachment to the bowel itself, the object being clearly to leave the mesentery a free and mobile conductor of the vessels and nerves regulating the nutrition and movements. When the strain of support is taken by the mesentery, nerves (both efferent and afferent) are stimulated mechanically, the result being a derangement of the nervous impulses responsible for the normal intestinal contractions. If the bowel muscle is progressively prevented from contracting, then (and then only) will continuous stretching further impair its muscular action. Is it not reasonable to infer that active muscular inhibition may be the primary ætiological factor in many of these thin-walled, lax colons? The gradual domination of the sympathetic associated with an approach to the more primitive mechanism of peristalsis has been referred to in contrasting the mechanism of the colon with that of the small intestine. The ease with which sympathetic efferent effects can be evoked experimentally have also been emphasised. Once more, then, I am convinced that visceroptosis is innocuous until the strain of support is taken by the mesentery. Such increased traction initiates active inhibition, leading to overloading; while this again increases the mesenteric strain, accentuates the inhibitory impulses, and so the vicious circle is established. Thus a controlling appendix, Lane's kink, relaxation of normal abdominal support, constipation from any cause, may be the primary factor in overloading the bowel, increasing the mesenteric strain, and initiating the symptoms so often associated with visceroptosis.

In a word, the predisposing factor is visceroptosis, probably always congenital. The ætiological factor is intestinal inhibition, arising from: (*a*) deficient abdominal and pelvic support to a normal bowel; (*b*) any cause of overloading of the bowel when the abdominal wall is efficient; and (*c*) both (*a*) and (*b*) acting together. These factors start a progressive vicious circle.

The extent to which this conception is supported by the results of practical surgery forms the next part of my study, embodying a detailed analysis of 196 cases under my care during the last seven or eight years. This number represents that proportion in which I could obtain the data required for analysis. Of these 86·3 per cent. were females, and only 13·7 per cent. males. I have excluded children from this study, with the exception of three cases of unusual interest, aged 15, 10, and 8 years respectively.

Cases not Operated on.

A brief review of these is instructive for comparative purposes, and also to show that, even when not always apparent, the abdominal wall may be partly at fault. Apart from general hygienic measures palliative treatment has, in the main, been directed towards preventing overloading of the bowel, and providing adequate support of the abdominal wall by belts and corsets. Usually for the last eight or nine years I have had corsets made with the plate fixed internally, and adjusted, after the corsets are applied, by outside strap supports. This has proved the most satisfactory and comfortable, though considerable patience in repeated alterations is often necessary.

Of the 39 cases not operated on, 23·8 per cent. are cured; 57 per cent. are relieved, and in 19 per cent. treatment gave no improvement. To the failures must be added two more cases whose symptoms got worse rapidly. One has been recently operated upon, and the other awaits operation. In two cases the replies were too vague, and 16 did not reply at all.

One particularly interesting feature is the number of these patients suffering from frequency of micturition when nothing pathological in the urine was ascertained. In the whole series this symptom was present in 34·5 per cent, of whom 50 per cent. complained of frequency by day only. I have regarded it as due sometimes to congestion of a right kidney when dragged on by a mobile cæcum and ascending colon (Fig. 6); sometimes as due to the weight of a loaded transverse colon on the bladder. (I have been led to regard this symptom as possibly of importance in the prognosis of palliative treatment; for in this series six complained of it and only one was cured. Of those who ultimately came to operation this symptom was present in 23 cases, of whom a good proportion were cured.)

In 62·5 per cent. pain was a prominent feature (10 cases). Of these relief was afforded by treatment when the pain was in acute attacks or left-sided. No cases were cured who complained of dragging right-sided pain, though all were relieved to some extent by the treatment and corsets. The results from cases (50 per cent.) where constipation had been a prominent symptom did not differ appreciably from the results where constipation had not been a feature. Indigestion, flatulence, nausea, distension, &c., was complained of in 50 per cent. also; and of these 20 per cent. were cured and 66 per cent. relieved.

Though these figures are of limited value from the small number of cases traced, yet they support my previous impressions. For the small proportion cured and large proportion improved illustrates the fact that the abdominal wall, though an important factor, only plays an accessory part in the later cycle of events.

FIG. 6.

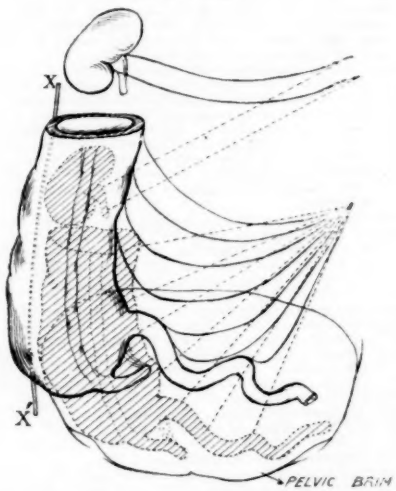


Diagram of efferent sympathetic inhibition to illustrate prolapse of the cæcum and ascending colon and resulting tension on nerve fibres. Continuous line, normal position with no tension on efferent nerves. Dotted line, prolapse associated with strain on mesenteric efferent sympathetic nerve fibres.

The other feature of interest is that the wearying dragging pain in the right side (so often erroneously attributed to mobile kidney, but really due primarily to a mobile cæcum and ascending colon) was not cured in any case, though it was improved in all. Not included in this series there is also a case in which nephropexy was performed at another hospital for this symptom with no relief. Complete cure was effected by the corsets, which are, however, indispensable. In another instance I performed nephropexy for acute renal crises with commencing intermittent hydronephrosis. This patient was completely cured of the acute renal symptoms, but for 18 months complained of a wearying dragging right-sided pain, for which I had to perform a colopexy.

A study of my cases shows that nephropexy is only justified as a measure directed against torsion of the renal pedicle (or excessive mobility, which may make this possible), and never for descent of the kidney associated with right-sided dragging pain alone. In the latter class, if proper corsets fail to give relief, operation should be directed towards fixing a mobile cæcum and ascending colon, which is primarily responsible for the mobility of the kidney.

Finally, even if failure of the abdominal wall and pelvic floor only plays a limited part in starting a drag which leads to local or general intestinal inhibition, it is evident that if such a failure is corrected by corsets early, and the resulting inhibition eliminated before secondary factors are established, a definite cure may be achieved. This is shown by 23·8 per cent. of cures in cases not operated on; and further, by the cure of 18·7 per cent. in those who gave a history of constipation as a prominent symptom. At the same time most of the cases not operated on were of an earlier and milder type than those now to be considered.

(To be concluded.)

DONATIONS AND BEQUESTS.—By the will of the late Mr. Charles Adolph Heimann, of Sussex Gardens, Bayswater, W., the testator left £2000 to the University College Hospital, to endow two beds in memory of his late wife, Florence Emily Heimann; £1000 to the University College School, for general purposes; and £1000 each to the Hospital for Sick Children, Great Ormond-street, the Paddington Green Children's Hospital, St. Mary's Hospital, Paddington, to endow beds; Queen Charlotte's Lying-in Hospital, for general purposes; and Lord Mayor Treloar's Cripples' Home. He left also £500 to the Italian Hospital, London.

SOME OBSERVATIONS ON THE INVESTIGATION AND TREATMENT OF NEPHRITIS.

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WITHIN recent years various tests for the examination of patients suffering from kidney disease have been suggested, but in many cases the interpretation of these tests is still unsatisfactory, and it is quite certain that many of them are of little or no practical value. In considering the importance to be attached to any test, it is essential to have a clear understanding as to the particular defect of renal function present in the different forms of renal disease. In chronic nephritis there are two distinct conditions which stand out clearly and are exceedingly well defined by chemical investigation.

The Functions of the Kidney.

Normally, the kidney performs certain specific functions, which may be summarised as follows: (1) Removal of waste nitrogenous constituents of metabolism, such as urea, uric acid, creatinin, &c.; (2) removal of acid products from the body; (3) maintenance of the necessary concentration of salts in the fluids and tissues.

In chronic interstitial nephritis there is in severe cases a definite retention of nitrogenous waste products in the blood, and this condition is associated with a diminution in the acid-excreting function of the kidney. In parenchymatous nephritis, on the other hand, there is no evidence of any retention of nitrogenous products or of failure to eliminate acid bodies, but there is often a definite failure to excrete the normal amount of salt.

In severe cases of acute disease all these phenomena may be present together, indicating a general interference with all the renal functions, but as convalescence progresses it often happens that there is a definite retention of nitrogenous waste products in some cases, while in others there is evidence of difficulty in the elimination of salt.

Defective excretion of nitrogen naturally causes an increased concentration of such bodies as urea and uric acid in the blood. Within comparatively wide limits it would appear that marked differences in the amount of these bodies in the blood does not interfere to any appreciable extent with ordinary cellular activity. On the other hand, it is most important to remember that any appreciable change in the concentration of sodium chloride in the blood is incompatible with life. It might therefore appear that any condition in which the kidneys failed to excrete sodium chloride would be one of the most serious of renal lesions, since it might tend to give rise to a fatal concentration of sodium chloride in the body. Normally, blood plasma and other body fluids contain, roughly, about 0·6 per cent. sodium chloride, and only slight variations from this figure are encountered even in patients who excrete practically no salt in the urine. When sodium chloride is retained it must be present in the body in definite concentration, and to accomplish this the body retains the necessary amount of water to yield this concentration. If much salt is retained a correspondingly large amount of water must be retained, with the result that œdema is produced. Generally speaking, each 0·6 g. sodium chloride retained requires 100 c.cm. of water. It is obvious that the same result will be produced whether the primary defect in the kidney is the elimination of salt or of water. If water is not eliminated its retention in the body tends to lower the salt concentration, and this is prevented by the retention of the necessary amount of salt to give the optimum concentration for the tissues. Salt can only be retained in the body when water is also retained and vice versa.

In parenchymatous nephritis the chief difficulty appears to be the excretion of the necessary amount of salt or of water. This results in the production of œdema, which is the most characteristic feature of the parenchymatous variety of renal disease. Strangely enough, the kidneys of such patients appear to be quite efficient in other directions, and so differ entirely from the kidneys of interstitial disease. Parenchymatous disease with marked œdema is always associated with the presence of a very large amount of protein in the urine, and consequently marked albuminuria and œdema are two of the most important symptoms in such cases.

In interstitial nephritis the picture is quite different. Here there is defective elimination of waste nitrogenous products and acid bodies, but no difficulty in dealing with salt. Hence, in typical cases, there is little or no tendency to œdema. The cardio-vascular system is involved. The urine often contains but a small amount of protein, and sometimes, even in bad cases, no protein at all can be found by the most delicate tests. Sometimes the symptoms of both parenchymatous and interstitial disease are present in the same patient, but more often very definite findings of one or other variety of the disease may be obtained.

While from clinical examination alone it may occasionally be difficult or impossible to differentiate these varieties, it is always possible to do so by chemical examination. A clear conception of the points involved is absolutely essential, for on this differentiation must be based any intelligent treatment of chronic nephritis.

The Difference between Interstitial and Parenchymatous Nephritis.

The chief points of difference between these two forms of renal disease are as follows:—

Interstitial Nephritis.	*Parenchymatous Nephritis.*
(1) Œdema absent.	Œdema present.
(2) Protein present in urine, but often slight or moderate in amount.	Protein present often in very large amount.
(3) Chlorides present in normal amount.	Chlorides diminished or may be absent.
(4) Urea concentration (urinary) decreased.	Urea concentration normal.
(5) Tendency to increase of urea and other nitrogenous products in the blood.	No retention of nitrogenous products in the blood.
(6) Cardio-vascular changes marked.	Cardio-vascular changes less marked.
(7) Tendency to uræmia.	Uræmia less frequent.

Parenchymatous nephritis.—In cases of uncomplicated parenchymatous disease, as already mentioned, the chief defect apparent on chemical examination is a difficulty in excreting salt. In certain cases sodium chloride may be entirely absent from the urine, while in others only traces may be present. It is by no means a simple process to ascertain the salt-excreting power of the kidneys, for the usual plan of giving 10 g. or more of sodium chloride by mouth and estimating the amount of this excreted in the urine is open to grave objections. Even in the normal individual a considerable amount of salt may be retained in the tissues, and it is only after repeated doses of salt given for several days that equilibrium is established and the kidneys excrete per day an amount equivalent to that taken in. In patients who are defective in the power of eliminating salt equilibrium is not established, with the result that marked and increasing œdema is produced. Even in hospital patients in the wards testing of the kidneys for salt excretion is a difficult and laborious process, while in patients seen only for a short time it is quite impossible. Practically, however, such tests are not required, for in patients in whom salt is retained to any appreciable extent the condition is obvious because of the resulting œdema. If no œdema is present it may be taken for granted that salt is not retained. In uncomplicated cases of parenchymatous disease the majority of the other tests used for estimation of kidney function give little or no information, since the results obtained are generally normal.

Interstitial nephritis.—The majority of cases of kidney disease belong not to the parenchymatous but to the interstitial type. Here careful investigation of kidney function is necessary, and most useful information is obtained by judicious examination. It may here be pointed out that the gravity of the case is in no way necessarily related to the amount of protein present; as is well known, very severe cases may on some occasions show no albuminuria whatever, even when tested by the most delicate methods. Again, it has now been thoroughly established that albuminuria per se is not necessarily an indication of renal disease, and may be present in individuals whose kidney function is apparently quite normal. In healthy soldiers who had just completed their training MacLean[1] found albumin in the morning urine in about 6 per cent. None of these men appeared to be suffering from defective kidney function. Further, it is possible for epithelial and hyaline casts to be present without any material or even appreciable kidney defect, so that in the absence of other symptoms the presence of albuminuria, and even of casts, is not necessarily of much value in assessing the degree of renal inefficiency involved. No doubt, in a general way, well-marked albuminuria associated with large

numbers of casts often indicates that the lesion is more or less considerable, but it is quite certain that in some cases this is not so. On the other hand, the presence of a mere trace of albumin, with few or many casts, may be associated with a very gross lesion. In spite of these qualifications the urine must in all cases be carefully examined for protein and casts.

Tests for Protein and Casts and Functional Tests.

By far the best and simplest test for protein is salicyl-sulphonic acid.

A suitable solution consists of 25 g. of the acid in 100 c.cm. water. A stronger solution may be used if desired. In testing a few drops of the solution are added to about ½ inch of urine in a test-tube. In the presence of much protein a dense white precipitate is obtained; if a small amount only is present a definite milkiness is produced, while in the presence of traces of protein a faint opalescence is obtained. The test is exceedingly delicate, and a urine in which no reaction takes place may be assumed with certainty to be protein free.

Casts should be looked for after centrifuging the urine. The only point to emphasise is the necessity for using as small a diaphragm as possible, for if this is neglected certain fine casts may be easily missed. The most suitable lens is an ordinary ⅔ objective with No. 3 or No. 4 eye-piece. A mechanical stage is useful if large numbers of specimens are to be examined.

After examining the urine for protein and casts, various tests may be employed for ascertaining the degree of involvement of the renal tissue. From an extensive experience of these tests we are of the opinion that the most useful for clinical purposes are the following: (1) Estimation of urea in the blood; (2) new "urea concentration test" (MacLean and de Wesselow[2]); (3) diastatic activity of urine.

Importance of Blood Urea.

The amount of urea in the blood of healthy individuals varies from about 15 to 40 mg. per 100 c.cm. An average figure in hospital patients with normal kidneys is, in our experience, from 20 to 30 mg. Anything over 40 may be taken as abnormally high.

When the kidney is unable to perform its normal work of excreting urea there is naturally an increase of urea in the blood. It is important to observe that even in very severe cases of nephritis the amount of urea excreted per day in the urine is the same as that of a normal individual on a similar diet, the difference between the two cases being that the patient with interstitial nephritis requires a much higher concentration of urea in the blood in order to accomplish this. If we look on the blood urea as a kind of pressure head we find that the healthy individual excretes his 25 or 30 g. of urea per diem with a head of, say, 25 mg. urea per 100 c.cm. blood, while the nephritic is only able to do this with a much larger head of blood urea; in bad cases this blood urea may be 200 to 300 mg. per 100 c.cm. blood, or even more. Thus, the concentration of blood urea is an excellent indication of the efficiency of the kidneys, for the worse the renal lesion the higher will be the blood urea. The kidneys comprise such a large mass of functionally active material that only from one-fourth to one-sixth of this is really necessary to carry out the body needs. It is, therefore, only in cases in which the kidney efficiency is reduced to one-fourth or less of its original value that there is any tendency for excess of urea to be retained in the blood. When this happens other substances, such as uric acid and creatinin, are also retained and accumulate in the blood. All these nitrogenous substances taken collectively are often referred to as constituting the "non-protein nitrogen" moiety of the blood. The amount of non-protein nitrogen present may, of course, be ascertained, and this is sometimes done in estimating kidney efficiency, but it is much easier to estimate the urea constituent alone. Since the urea concentration runs parallel in a general way with that of the other nitrogenous substances, this estimation gives all the information necessary.

From the above it will be seen that estimation of urea in the blood gives most valuable information, for when this ingredient is appreciably increased it is certain that the effective kidney tissue remaining is equivalent to less than one-fourth of the total kidney substance. In the great majority of cases of interstitial nephritis there is by no means such a marked involvement of kidney function, and therefore no evidence of increased blood urea. In bad acute cases estimation of blood urea gives invaluable information as to the course of the disease, for a progressive lesion is accompanied by a steadily increasing urea concentration, while a decreasing concentration indicates a good prognosis. In such cases it is advisable to examine the blood for urea at short intervals, for the blood urea constitutes a much safer guide than do the clinical symptoms; in fact, the latter may be quite deceptive, the condition of the patient appearing to be satisfactory in cases that terminate fatally within a week or ten days.

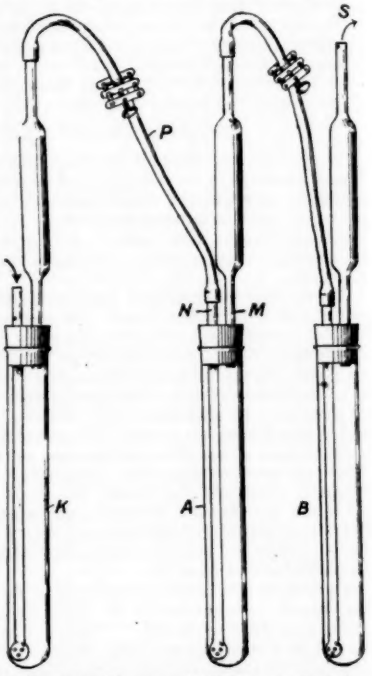
Estimation of Blood Urea.

The estimation of the blood urea is carried out on the lines suggested by Marshall,[3] Van Slyke,[4] and many others. The modifications here described were suggested by MacLean and de Wesselow,[2] and have been found to work well.

The principle of the method depends on the fact that soya bean contains a specific enzyme (urease) which converts urea quantitatively into ammonium carbonate, but has no effect whatever on any other nitrogenous constituent. In the presence of alkali the ammonia is liberated from the ammonium carbonate, and by the help of a current of air is passed through a standard solution of acid. The amount of acid neutralised indicates the amount of ammonia present, and from this the urea can be calculated. Various preparations of urease, more or less pure, are now on the market, but they all suffer from the disadvantage that they are unstable, and therefore soon become unreliable. For clinical work it is far better to use finely ground soya bean meal; this can be prepared by passing the beans through a coffee machine, and it keeps indefinitely. For each experiment 0·3 g. of this meal is used, and since it contains traces of ammonia a small allowance has to be made. In various specimens 0·3 g. of the meal neutralised almost exactly 0·4 c.cm. N/100 sulphuric acid. This has to be subtracted from the total amount of acid neutralised in the actual experiment.

The estimation is carried out by means of tubes (K), fitted as shown in Fig. 1.

FIG. 1.—*Tubes for Estimation of Blood Urea.*



K, Contains 10 per cent. H_2SO_4. A, Contains blood. B, Contains 25 c.cm. N/100 acid. S, Leads to suction pump.

These tubes should be about 200 mm. deep and about 25 mm. wide. Each tube has a well-fitting rubber cork. Through this cork two small tubes pass. One of these (N, Fig. 1) has a small dilatation at the end, which is perforated with several small holes. This tube goes to the bottom of the larger tube (A). Through the other hole passes a tube (M) with a dilatation, which acts as a trap to prevent any fluid passing over. Two such large tubes are required for each estimation. To each of the small tubes passing through the rubber stopper is attached about 1 foot of ordinary stethoscope rubber tubing (P). For the accurate measurement of the blood it is best to have a special pipette made "to contain" 3 c.cm.

The materials required to carry out the estimation are as follows:—

(1) A solution containing 6 g. potassium hydrogen phosphate in 1000 c.cm. water. (2) Soya bean meal. (3) Caprylic alcohol (to prevent frothing). (4) N/100 H_2SO_4 and N/100 NaOH. (5) A saturated solution of methyl red in 50 per cent. alcohol (indicator). (6) Solid anhydrous potassium carbonate. (7) Saturated solution of potassium carbonate. (8) 2 × 25 c.cm. burettes accurately graduated in 1/10ths. (9) A pipette made to contain 3 c.cm. blood (made by Hawksley and Son, Oxford-street, W.). (10) A good water suction pump.

Method of obtaining blood.—About 10 c.cm. or less of blood are withdrawn from a vein at the bend of the elbow into a test-tube, coagulation being prevented by the use of a small amount of finely powdered potassium oxalate. The tube into which the blood is drawn must be inverted a few times to mix the solid oxalate thoroughly with the blood, otherwise coagulation may take place.

Details of Actual Estimation of Urea.

Two tubes, fitted as above described (see Fig. 1), are taken and adjusted so that the perforated inner tube (N) with the small bulb passes to the bottom of the outer tube. One of these tubes is used for the blood, while the other serves to contain the acid required for estimating the ammonia. The rubber corks and attachments are then removed and 5 c.cm. of acid sodium phosphate solution measured into the urea tube. By means of the special pipette 3 c.cm. of blood are added to the phosphate, the pipette being thoroughly washed out two or three times with the phosphate

mixture so as to remove all traces of blood. From 6 to 8 drops of caprylic alcohol are then added, and finally 0·3 g. soya bean meal. The rubber stopper is now quickly replaced and the tube closed by means of clips on the rubber tubing. The tube is placed in a bath at a temperature of 40 to 45° C. and left there for 15 to 20 minutes. During this time it should be occasionally shaken. While the urease is acting on the blood urea 25 c.cm. of N/100 acid are added to the other tube (B) together with 1 drop of caprylic alcohol and 2 drops of methyl red solution.

When hydrolysis of the urea is complete the tube is removed from the bath and connected with the tube containing the acid, so that air passing in through tube (N) will first pass through the blood and then through tube (M) to the acid in the large tube (B). To get rid of possible traces of ammonia in the atmosphere it is necessary to pass the air through a 10 per cent. solution of sulphuric acid contained in tube (K). When the tubes are connected air is drawn through by means of the pump for two minutes or so. By this means any ammonia present in the air in the blood tube is passed into the acid. The blood-tube is now opened and 4 c.cm. of saturated potassium carbonate solution followed by 3 g. of solid anhydrous potassium carbonate added. The stopper is quickly replaced and a current of air drawn through; this should be slow at first, but after a few minutes the pump may be turned on to its fullest capacity. The time required for complete removal of the ammonia depends on the pump employed, but with an ordinary pump the experiment should be complete in 30 minutes.

The tube containing the standard acid is now disconnected and the acid transferred quantitatively to a small Erlenmeyer flask. To do this the tube and perforated bulb must be washed two or three times with small quantities of distilled water. The acid is then titrated with N/100 sodium hydroxide until the indicator gives a faint yellow colour. The difference between the 25 c.cm. acid originally taken and the number of cubic centimetres of alkali used gives the number of cubic centimetres neutralised by the ammonia. From this 0·4 c.cm. must be subtracted to allow for traces of ammonia generated from the soya bean.

The calculation is very simple, for when the above quantities are used each cubic centimetre of acid neutralised equals 10 mg. urea.

Estimation of Renal Efficiency in Cases showing no Increase in Blood Urea.

From what has already been said it is obvious that estimation of blood urea gives information only in advanced cases of renal disease. Even though fairly extensive degeneration of the kidneys may be present, it may not be sufficiently advanced to cause any increase in blood urea and this is the type of case most frequently met with in general practice. Such are the cases in which it is perhaps most difficult to arrive at a satisfactory conclusion as to the real condition of the kidneys, and of all the tests used in this connexion we have found the new urea concentration test the most helpful. This test in conjunction with the diastatic reaction gives most useful information.

Urea concentration test.—This test was introduced by MacLean and de Wesselow [2 5] about two years ago and has now been used in nearly 3000 cases. It has none of the technical difficulties of the great majority of renal functional tests, does not require the patient to be under observation for more than a very short time, and can be carried out with the simplest apparatus. The test depends on the fact that patients with defective kidneys are incapable of passing urine with a high concentration of urea, even after a large dose of urea has been taken by mouth. Further, the degree of concentration of urea appears to be in direct relationship to the involvement of the kidneys. In a normal person the urine passed one or two hours after a dose of 15 g. urea should contain from 2 to 4 per cent. urea. In patients suffering from nephritis the urea percentage is often much less, depending on the gravity of the condition. If the urea percentage is below 2 the condition is unsatisfactory, and the lower the percentage the more serious the lesion. Cases with a concentration of urea lower than 1 per cent. are comparatively rare, but many moderately severe cases are unable to concentrate to more than about 1·4 to 1·5 per cent. urea.

Details of test.—(1) The patient empties his bladder and immediately afterwards takes by mouth 15 g. urea dissolved in 100 c.cm. of water. The solution may be flavoured with a few drops of tincture of orange. (2) One hour after taking urea he passes water. This sample is kept and measured. The urea percentage may be estimated in this specimen, but as a general rule it is best to do this in the next specimen. (3) Two hours after taking urea he again passes water. This sample is measured and kept for urea estimation.

The reason why the urea is calculated in the specimen passed two hours after taking the urea depends on the fact that urea may give rise to a certain amount of diuresis in patients who have been imbibing large amounts of fluid immediately before taking the dose. This diuresis generally passes over in the first hour, so that, in general, the specimen passed after two hours is always used for estimation of urea.

Very occasionally it happens that a large amount of urine is passed during both the first and second hours; in such cases a specimen passed after three hours should be examined. If it is not convenient to detain the patient for three hours it may be taken for granted, if no other signs of renal disease are present, that the passage of very large amounts of urine giving a comparatively low urea concentration is dependent on diuresis and does not indicate kidney disease. Not more than an average of 150 c.cm. urine should be passed per hour, and in cases where 350 to 600 c.cm. or more are passed in the two hours of the test any tendency to a low urea concentration may be put down to the passage of excessive fluid. In practice there is seldom any difficulty on this account, but occasionally, and especially when dealing with out-patients, in whom the intake of fluid cannot be regulated, it is important to bear this possibility in mind. So far the test has given excellent results, and in our opinion more useful information is to be obtained by this simple method than by any other functional test at present in use.

Estimation of Urea.

Urea is estimated by the ordinary hypobromite method.

The apparatus used should give the volume of gas evolved. A very suitable arrangement, which is really a modification of Gerrard's apparatus, is sketched here (Fig. 2). This consists of an ordinary 50 c.cm. graduated burette (A), which has a glass tap (R) fixed at its upper end. This burette is connected by rubber tubing (E) with a bottle (D) containing the urine and hypobromite solution. This solution consists of about 23 c.cm. of 40 per cent. sodium hydroxide solution to which 2 c.cm. of bromine are added. The lower end of the burette is attached by rubber tubing to a small bell-shaped vessel (M) to hold the water displaced by the evolved nitrogen.

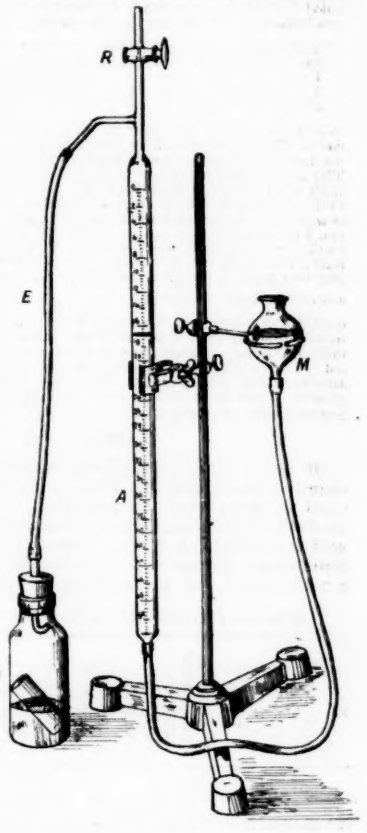


FIG. 2.—*Apparatus for Urea Estimation.*
(Modification of Gerrard's apparatus.)

Before carrying out an experiment water is poured into the bulb (M) until it is about three-quarters full. Care must be taken that no air bubbles remain in the rubber tube. The water, of course, rises in the burette until it is at the same level as the water in the bulb.

In estimating the percentage of urea 4 c.cm. of urine are measured into the small tube. About 25 c.cm. of sodium hypobromite are put into bottle (D) and the test-tube containing the urine placed inside the bottle so that the fluids do not mix. Tap (R) is then opened and the rubber stopper placed tightly in bottle (D). Bulb (M) is then raised until the level of the water in the burette is at zero. The level in the bulb will be naturally at the same level as that in the burette. Keeping the level at zero, the tap (R) is closed and the bulb replaced in its support. The contents of the test-tube are now thoroughly mixed with the hypobromite, the bottle being shaken for half a minute or so. After another half minute the bulb (M) is moved so as to have the level of fluid in the burette adjusted to that in the bulb. The number of cubic centimetres of gas is then read off and the urea percentage calculated on the basis of 8 c.cm. of nitrogen to 0·5 per cent. of urea. This equivalent has been worked out by estimating the average amount of urea obtained from various specimens of urine by the soya bean method and comparing these with the results obtained by hypobromite.

In conjunction with the urea concentration test we generally employ the diastatic test. In general, when the urea test gives a low result, the amount of diastase in the urine is found to be low.

Diastatic Test.

This test depends on the presence of diastase (the ferment which changes starch into sugar) in the urine. This diastase is obtained from the blood, which in turn gets it from the pancreas. Normally, blood contains a definite amount of diastase, and when the kidneys are efficient a constant amount of this (6 to 30 units) is excreted daily in the urine. In defective kidneys the amount is lower, depending on the degree of deficient renal action. The diastatic activity of any specimen of

urine is estimated in terms of the amount of starch which a definite volume of the urine will change in a given time, the disappearance of the starch being indicated by the failure of the mixture of starch and urine to give a blue colour with iodine. This test gives very good results when it is possible to get a sample of the 24 hours' urine, but is not nearly so accurate with single specimens of urine passed at different times of the day. A high diastatic value is in nearly every case an indication of efficient renal action.

Solutions Required and Method of Carrying Out Test.

For the test the following solutions are required: (1) A 0·1 per cent. solution "soluble" starch prepared by heating 0·1 g. soluble starch in a small amount of boiling water, cooling, and making up the total volume to 100 c.cm.; (2) 0·9 per cent. sodium chloride solution; (3) a solution of iodine about 1/10th normal.

In carrying out the test five test-tubes are taken and numbered from 1 to 5. The following amounts of urine and normal saline are then added to each tube, normal saline being used to make the total volume up to 1 c.cm. For adding the fluids 1 c.cm. pipettes graduated in 1/100ths are most suitable.

Tube No.	Urine c.cm.	Normal saline c.cm.	Tube No.	Urine c.cm.	Normal saline c.cm.
1	1·0	—	4	0·2	0·8
2	0·6	0·4	5	0·1	0·9
3	0·3	0·7			

When the tubes are ready 2 c.cm. starch solution are added to each. The mixture is then quickly shaken and the tubes put into an incubator or hot-water bath at 37° C. for exactly 30 minutes. The tubes are then removed and filled to within an inch of the top with cold water. This stops the ferment action. One drop of iodine is now added to each tube, beginning at No. 5. On shaking it will often be found that the last two tubes are still blue, but that No. 3 is colourless, or has only a faintly pink tint. If so, No. 3 tube contained just sufficient urine to change the 2 c.cm. of starch in half an hour. The empirical unit denoting the change is obtained by dividing 2 (the amount of starch in cubic centimetres taken) by the amount of urine in tube No. 3—i.e., $\frac{2}{0{\cdot}3} = 6{\cdot}6$. In the case of tubes containing fairly large amounts of urine it may be necessary to add more than one drop of iodine, since urine itself may take up some iodine. On this account the first drop of iodine may show no blue colour even when unchanged starch is present. On the addition of another drop, however, the blue colour will appear. Naturally, a greater number of tubes may be employed, but for practical purposes five are sufficient.

Other Tests.

Of the various other tests which have been recommended from time to time, perhaps the most widely used is phenolsulphonephthalein. No doubt this is a useful test, but to carry it out a colorimeter is required, and the matching of the colours is by no means easy. Sometimes attempts have been made to dispense with a colorimeter, but the error in direct estimations of the coloured solutions is so great as to render the method quite unsatisfactory. Again, the formula, suggested by Ambard and known as Ambard's coefficient, appears to be of little value except in cases where there is an increase in the blood urea; it appears to give no information beyond that which is obtained by estimation of blood urea. For general routine testing of kidney function we find the above combination of tests very suitable and capable of giving all the information we can hope to obtain in the present state of our knowledge of kidney function. Some results obtained from actual cases are given here.

Results of Examination in Some Nephritis Cases.

No.	Age in years.	Protein.	Casts.	Urea concentration test. %	Diastatic test.	Œdema	Blood pressure.	Position of apex beat.	Condition of arteries.	Clinical condition.	Opinion as to kidney condition.
1	30	T.	E. +	1·2	3	—	185	N.L.	S. Th.	Good.	Badly damaged.
2	35	++	H. +	3·3	20	—	130	Int. N.L.	Good.	Fairly good.	Quite efficient.
3	41	++	H++ E. +	2·7	15	+*	135	,,	,,	Pale.	Par. Ne.; bad.
4	38	—	E++	0·9	1	—	160	Ext. N.L.	Th.	Fair.	Badly damaged.
5	44	+	H. + Gr. +	3·9	20	—	220	,,	,,	Good.	Efficient. Card. vas.
6	45	T.	H. + E. +	0·8	<1	—	210	N.L.	,,	Poor.	Extremely bad.

T., Traces. +, Present in small quantity. ++, Present in large quantity. —, Absent.
E., Epithelial casts. H., Hyaline casts. Gr., Granular casts.
+*, Present in legs and abdomen. N.L., Nipple line. S., Slightly. Th., Thickened.
Par. Ne., Parenchymatous nephritis.
Card. vas., Cardio-vascular case.

General Clinical Examination of the Patient.

The main purpose of this paper is to discuss certain aspects of nephritis and not to attempt an examination of the whole subject; nothing does away with the necessity of a thorough clinical examination of the patient, in addition to any chemical investigations, in endeavouring to estimate the probable prognosis in a given case. The condition of the cardio-vascular, digestive, respiratory, and nervous systems manifestly demands careful attention. Obviously when renal disease is associated with marked arterial degeneration and high blood pressure the outlook is by no means good, even in cases in which the results of functional tests are more or less satisfactory. The frequency of death from cerebral hæmorrhage in such cases must not be lost sight of, for not infrequently the renal condition is secondary to the cardio-vascular changes.

Treatment.

Apart from the question of general treatment, the dieting of patients suffering from nephritis has always been perplexing and difficult. Recently, however, Epstein [9] suggested that patients suffering from marked œdema or ascites resulting from parenchymatous nephritis should receive a liberal protein diet. He claimed that this treatment resulted in a complete disappearance of the dropsy in many cases. This observation has been substantiated by many observers, and it is now generally admitted that an increase in protein diet is indicated in cases of parenchymatous disease in which dropsy plays a prominent part. In such cases the disappearance of the dropsy which often follows the change in diet is not accompanied by any definite beneficial change in the renal tissue. The amount of protein excreted in the urine is as large as ever, but the patient's general comfort is so greatly increased that he passes from a life of acute suffering to one of comparative ease. This disappearance of the dropsy which so often results from an increased protein intake has been explained by Epstein on the supposition that the lowered plasma protein content is increased, and that consequently a greater osmotic pressure is exerted in the circulatory system; this increased pressure attracts fluid from the tissues to the blood stream, and this fluid is in turn thrown out by the kidneys.

Even if we assume that an increased protein diet does really increase the plasma protein in such cases, it is difficult to understand why this should result in a disappearance of the œdema. On theoretical grounds, indeed, it might possibly be argued with equal force that the result would be an increase in the œdema. Estimation of the plasma protein, however, in several cases of parenchymatous nephritis did not indicate any increase as the result of protein feeding, yet in all these cases the dropsy disappeared. Since this disappearance was always associated with an increase in the blood urea it seems almost certain that the increased excretion of urine in such cases was due to the diuretic action of the urea in the blood.

Action of Urea in Removing Dropsy in Parenchymatous Nephritis.

The fact that increased concentration of urea in the blood accompanies the clearing up of the œdema suggested that possibly urea itself might act in the same way. To test this we have given large doses of urea to several patients with marked ascites and œdema, with the result that in each case the dropsy gradually disappeared. It is hoped to publish details later, and in this connexion it is only necessary to remark here that the treatment, to be successful, must be persevered with for several weeks or even longer if necessary. Thirty grammes or more of urea may be given per day. We generally give two doses of 15 g. dissolved in a little water every 24 hours. Soon the amount of urine passed increases greatly and may be double or treble the ordinary amount. In one case in which this treatment

was tried the patient (a female) was absolutely water-logged, and it would be difficult to imagine a more intense œdema and ascites than she exhibited. After a month of urea treatment she began to improve and in three months was quite free from dropsy. She then left the hospital and stopped taking urea. In about a month she returned suffering from both œdema and ascites, which were almost as marked as at the beginning. After a fortnight on urea this cleared up entirely. She was watched for some time and the urea gradually cut off. She is now quite free from œdema and ascites, although she has had no urea for several months.

After-History of Parenchymatous Cases Cured of Dropsy.

Probably the most dangerous variety of chronic kidney disease is that of parenchymatous nephritis accompanied by well-marked œdema and ascites. The tissues become water-logged, and unless relief is obtained the heart and lungs become embarrassed, and the patient dies, we might almost say, from drowning. Although the treatment mentioned above may often succeed in removing the dropsy the renal condition is not influenced, and the proteinuria remains as marked as ever. Though the patient is not cured it is most important to relieve the dangerous dropsical condition, for in the rare cases that survive there seems to be a tendency to pass from the stage in which œdema is one of the most distressing symptoms to one in which the symptoms represent those of chronic interstitial nephritis. When this stage is reached the immediate danger to life is much less and the patient may live in comparative comfort for many years. It is thus most important to prevent the ill-effects of excessive water-logging of the tissues by all means in our power, for if we succeed in keeping the patient alive for some time and get rid of the œdema by appropriate treatment it is reasonable to expect that the condition will change, and the tendency to œdema with its immediate danger to life will in many cases gradually pass over.

The Question of Protein Diet in Interstitial Nephritis.

There does not seem to be any theoretical objection to giving protein or urea in large amounts to parenchymatous cases in which there is no retention of nitrogenous products in the blood. In interstitial cases where such retention tends to be more or less well marked, it is generally considered that protein, especially in the form of meat, is, on the whole, contra-indicated. There is, however, no proof whatever that protein acts detrimentally even in advanced interstitial nephritis, but, on general principles, it is probably best in the present state of our knowledge to limit the intake of protein in patients showing marked retention of nitrogenous products in the blood. This appears to be the general practice, and it is no doubt a good one. On the other hand, it seems quite certain that milder cases of interstitial nephritis are not benefited by very strict dietetic limitations. It is customary for many medical men to order a very strict régime very low in protein content in many cases in which the renal condition is by no means bad. At present many hundreds of men who contracted nephritis on military service, and who still show some albuminuria, are really suffering far more from the effect of low diet than from their renal disease. In the course of the last few months we have seen a large number of such cases in connexion with nephritis work being carried out for the Ministry of Pensions. As the result of very many observations we are convinced that, in general, patients suffering from interstitial nephritis of moderate severity should be allowed a fairly liberal diet in which protein need not necessarily be cut down to any great extent. In very severe cases it is probably best to depend chiefly on carbohydrate food. The whole question of the effect of protein diet in kidney disease still requires much investigation, but it is certain that the custom of feeding patients practically on slops for long periods does more harm than good.

References.—1. MacLean, H.: Albuminuria and War Nephritis among British Troops in France, Med. Research Committee, Spec. Rep. Ser., No. 43, London, 1919. 2. MacLean, H., and de Wesselow, O. L. V.: Quart. Jl. Med., 1919, xii., 347. 3. Marshall: Jl. Biol. Chem., 1913, xv., 487. 4. Van Slyke, J.: Jl. Biol. Chem., 1914, xix., 211. 5. MacLean, H., and de Wesselow, O. L. V.: Brit. Jl. Exper. Path., 1920, i., 53. 6. Epstein; Amer. Jl. Med., 1917, cliv., 638.

THE FACTOR OF FEVER IN THE DIAGNOSIS OF CANCER.[1]

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GENERALLY speaking, fever is uncommon as an accompaniment of cancer; its chief importance depends on the liability to forget it. If fever be forgotten, cancers may be diagnosed as inflammatory lesions, and inflammatory conditions secondary to cancers may have their cause overlooked. The practical problems which present themselves in connexion with fever in cancer are three: 1. If fever is present, is it caused by uncomplicated cancer? 2. If cancer is present and fever also, is the fever due to the cancer itself or to some inflammatory complication? 3. If an inflammatory lesion is present, causing fever, is cancer also present?

Some years ago it was taught that uncomplicated cancer is necessarily afebrile. Thus, so lately as 1895 a well-known writer on diseases of the stomach committed himself to the statement that "uncomplicated cancerous disease does not of itself produce fever." And this teaching, though not universal, has done much to create a general impression which persists. There is now, however, evidence that rapidly growing cancers, such as round-celled sarcomata and the softer varieties of carcinoma, in certain organs, can cause fever in the absence of an inflammatory complication. This seems to be the case in six situations at least—viz., in the liver, stomach, suprarenals, long bones, lungs with mediastinum, and breast. But precise evidence, so far as I can discover, is limited to cancer of the liver, the stomach, and the long bones. Evidently the subject needs closer attention than has yet been given to it. However, the following three statements seem to me to establish the fact that it occurs.

Sir Humphry Rolleston writes that amongst cancers of the liver cases occur accompanied by fever, as in some instances of primary malignant disease of the organ, in which no other cause for the fever than rapid cell-growth is forthcoming. Dr. Soltau Fenwick, speaking of the softer varieties of carcinoma associated with fever (primary growths, of course), says that in 8 per cent. of them the growth was not associated with any complications visible to the naked eye. My colleague, Mr. B. Dyball, tells me that he has had a case of sarcoma of the tibia in which the temperature was constantly between 100 and 101° F. in absence of any inflammatory complication.

I propose to call this fever of cancer uncomplicated by inflammatory lesion "growth fever," a name which only commits us to the assumption that the fever is produced by some process of the growth itself, apart from inflammation: and to term the fever caused by any inflammatory complication of a cancer "complication fever."

In what I have to say no reference will of course be made to such independent intercurrent febrile disorders as may attack cancer patients, just as they may attack anyone else—influenza, typhoid, &c. Nor shall I lay much stress on terminal fever, due to some final complication, preceding death by but a few days, although I shall allude to it where it may occur; such terminal temperatures do not help us much in the matter of timely diagnosis. I shall avoid reference to my own personal experience except in a very few instances, since opinion on this subject must be formed upon a wider basis.

What I have termed "growth fever" has hitherto been explained as "due to the rapid growth and multiplication of the cells," to "an extreme activity of cell growth." This may well be the cause. But there are other possibilities which have to be considered. The following suggestions have been put forward by some of my colleagues with whom I have discussed the subject. Mr. A. L. Candler points out that in a rapidly growing cancer the vitality of the new

[1] A paper read at a meeting of the Devon and Exeter Medico-Chirurgical Society, April 22nd, 1920.

cells is low, and suggests that the fever may be due rather to absorption of dead material than to activity of growth. In support of this idea Mr. A. C. Roper recalls a case in which a mass of inoperable glands in the neck was submitted to the X rays, with the result that the temperature went up to 103°, a condition of fatal toxæmia being established, seemingly from excessive destruction of cancer cells. Mr. N. F. Lock makes a different suggestion, that, as in rapidly growing cancer hæmorrhage is common, the absorption of this blood may account for the fever.

Classification of the Conjunction of Fever and Cancer.

I will classify cancers according to the type of fever occasionally found in conjunction therewith:—

A. *Either growth fever or complication fever.*—Liver,* stomach,* suprarenals,* lung with mediastinum, long bones, breast (rarely).

B. *Complication fever only.*—Gall-bladder,* bile-ducts,* large intestine,* small intestine,* appendix,* uterus,* fallopian tubes,* ear,* glands in neck,* tongue, lip, œsophagus, pancreas, peritoneum, rectum, eye, larynx, thyroid.

* Commonly.

C. *Neither form of fever.*—Kidney, ovary, vulva, testis, penis, urethra, parotid, jaw, brain, spine, skin, muscles, heart and pericardium.

Group A.—Cancers accompanied by either "Growth Fever" or "Complication Fever."

Liver.—"Growth fever" is said to be more common in cancer of the liver than in cancer of any other organ. At all events it is not uncommon in primary carcinoma and sarcoma, especially in the rapidly fatal sarcomata of young persons. The temperature generally reaches 101°, and seldom exceeds 102°. It may continue for weeks. The diagnosis of such cancers from abscesses, says Rolleston, may only be possible on exploration, especially in children and young adults. The difficulty is increased by the occasional breaking down of the tumour with the formation of cysts. In quickly-growing secondary sarcomata and carcinomata of the liver "growth fever" may also occur; but here the presence of a primary cancer elsewhere, with perhaps an open ulcer, renders the source of the fever uncertain.

"Complication fever" may be caused by the following complications of hepatic cancer: abscess (single or multiple), suppurative cholangitis, suppurative pylephlebitis (very rare), empyema (rare), ulcerative endocarditis (very rare). So when we diagnose the presence of one of these lesions, though cancer may not be obvious, we have to remember that either a hepatic cancer, or some other cancer to which a hepatic cancer may be secondary, may be the cause thereof.

It is necessary also to recall in our diagnosis the other febrile hepatic diseases, besides those just enumerated, which must be diagnosed from febrile cancer; and to remember that many diseases of the liver may be associated with fever. Syphilis with gummata may, in the liver, set up a temperature just as cancer may do. Portal cirrhosis is occasionally febrile in its earlier stages, especially in young patients, apart from its febrile complications. The temperature may range from 100 to 102·5°. Biliary cirrhosis (less likely to cause difficulty, from the earlier age and the history) is generally accompanied only by febrile exacerbations with abdominal pains and temporary increase of jaundice. Gall-stones may cause either "intermittent hepatic fever" or the more continuous high temperature of their complications. Abscess, and acute hepatitis short of abscess, may cause a high and swinging temperature with rigors. Lymphadenomatous enlargement of the liver may be associated with the peculiar oscillating and undulatory fever of certain cases of that disease. Lastly, infective jaundice, actinomycosis, suppuration hydatid disease, and massive tubercle have to be borne in mind.

Stomach.—"Growth fever" appears to occur in a certain number of cases of cancer of the stomach, seemingly most often in sarcomata, especially in young persons, and in the softer varieties of carcinoma which are often met with on the walls of the organ as distinguished from the orifices. This fever may be present throughout the whole course of a round-cell sarcoma. It is usually continuous and ranges from 99 to 102°. Taking both sorts of fever together, Fenwick finds that a third of all cases of gastric cancer have fever at some part of their course, and he points out that sometimes this fever is so prolonged and severe as to cause serious mistakes in diagnosis; of the cases which have fever about half have it constantly. Osler and McCrae found fever in half their cases, and constant fever in a fifth of this half.

When even occasional fever is present throughout the course of a gastric cancer, chills are common, in which the temperature may rise as high as 102 or 103° and remain up for two or three days. When the fever is continuous the temperature is generally, Fenwick says, between 99 and 100° in the morning and between 100 and 101° in the evening. Occasionally the morning temperature is subnormal, so that the chart resembles that of suppuration. Either of these types may last for months. Towards the end the fever is apt to cease. In rare cases the fever is constantly over 100° and shiverings and sweatings accompany it.

The complications of gastric cancer capable of causing fever are: general peritonitis from perforation, in about 3 per cent. of the cases; local peritonitis, also in about 3 per cent., producing subdiaphragmatic abscess, generally below the left wing of the diaphragm, abscess between the stomach and the anterior abdominal wall, or some small pocket of pus elsewhere; abscess of the liver, spleen, or kidney from direct invasion of one of those organs—these are rare, especially the last; suppurative pylephlebitis is very rare.

It is noteworthy that, apart from perforation of a gastric ulcer and the very rare cases of phlegmonous gastritis, gastric diseases are not attended by fever. Hence considerable fever in connexion with gastric disease, but in absence of evident complications, may suggest the presence of some form of rapidly growing cancer.

Suprarenals.—Cancer of the adrenals seems to be very commonly associated with considerable irregular fever, and Dock goes so far as to state that this occurs in half the cases. Such fever appears to be "growth fever," for I can find no statement that inflammatory complications in any case account for it. It is worth calling to mind that acute adrenal hæmorrhage is a markedly febrile disease.

Lungs and mediastinum.—"Growth fever" seems to account for some of the febrile cases reported, since a single large lung tumour may produce fever apparently without inflammatory complications. I remember seeing many years ago, with Dr. Alfred Perkins, an old postman suffering from what resembled acute rheumatic fever, with considerable temperature, sweating, and a rapid very feeble heart. On autopsy a primary cancer of the lung was found on the left side, beginning in the root of the lung and extending upwards and backwards to reach the pleura under the supraspinous fossa; no inflammatory complication was discovered.

All authors describe a rare and remarkable form of pulmonary cancer which runs an acute course of something under three months, with rigors, fever, sweatings, and rapid emaciation, the temperature reaching 102 or 103°. Such cancers have been mistaken by good observers for caseous pneumonia. The presence of moderate and irregular fever in a pulmonary case, coupled with the pressure symptoms which pulmonary tumours exert, has been held to point towards cancer. More often probably fever in lung cancer is due to complications. These are empyema abscesses in the lung from blockage of bronchi, cavities associated broncho-pneumonia.

The same remarks apply to cancer of the mediastinum, often not easily distinguished clinically from pulmonary cancer, where, according to Sir R. Douglas Powell and P. Horton-Smith Hartley, pyrexia of a low irregular type is often present; but in such cases the growth is rarely found at autopsy to be uncomplicated, "broncho-pneumonia" or a slowly disintegrating form of septic broncho-pneumonia being most often discovered. W. H. Walshe met with complicating empyema on the side most affected at least six times. In lung and mediastinum the curious paradox arises that where the diagnosis lies between cancer and an acute or subacute inflammatory consolidation or effusion, in which fever is practically invariable, absence of fever would suggest growth; whilst in cases where the question lies between cancer and a very chronic condition, like some chronic pneumonias, in which fever is generally absent, fever would suggest cancer.

Long bones.—Sir H. Butlin and Dr. Colby in 10 cases of various kinds of sarcoma of the femur found constant fever in 5, habitually 100° in most of them, and 102° in one case up to the time of amputation. So far as one can discover from the meagre details, these cases appear to have been uncomplicated. These authors note the difficulty in diagnosis caused by the rise of temperature, but do not definitely state whether inflammatory complications did or did not exist. Mr. Dyball, as mentioned above, has seen a case of sarcoma of the tibia in which the temperature was constantly between 100 and 101°, with no inflammatory complications.

Breast.—"Growth fever" is definitely stated to occur in rare and rapid cases of primary breast sarcoma. And by inference it seems likely that such cases of rapid sarcoma and carcinoma as "simulate abscess" are febrile; but I cannot find this stated. "Complication fever," one imagines (again it is not stated), would accompany the abscesses which rarely form in connexion with breast cancer.

Group B.—Cancers accompanied by "Complication Fever" Only.

Uterus.—Pyometria may occur in either cancer of the body or cancer of the cervix. When pain has come on and the uterus is fixed, W. J. Sinclair finds fever at night (100° or a little higher) constant, and attributes it to parametritis or septic absorption. Later on, he says, occasional fever may be higher still. Pelvic peritonitis, pyosalpinx, and abscess of the ovary are all rare events.

Fallopian tubes.—Pyosalpinx seems common in this very rare disease.

Tongue.—Butlin stated that tongue cancers "set up suppuration round them and in the neighbouring glands."

Larynx.—P. Watson-Williams and Sir Felix Semon tell us that "secondary perichondritis, which may proceed to suppuration and exfoliation of cartilages, not infrequently complicates the disease and may quite obscure its objective symptoms."

Thyroid.—Remittent fever is not uncommon in the later stages according to G. Dock, but he makes no mention of suppurative complications.

Œsophagus.—Periœsophageal abscess may be set up, or empyema, or pulmonary gangrene. All are unusual. It may be of interest to mention a case of pulmonary gangrene caused by an œsophageal perforation from cancer, where my colleague, Dr. R. V. Solly, found in the fluid an organism at least closely resembling the Oppler-Boas bacillus.

Small intestine.—Duodenal cancer, when it involves the biliary papilla, typically ends, Rolleston tells us, in cholangitis. Cancer of the jejunum or ileum may cause fever and tumour so as closely to simulate appendicitis.

Appendix.—Cancer of the appendix causes an attack just like appendicitis, and the nature of the case is only discovered after operation. My colleague, Dr. Ransom Pickard, gives me a good instance of this.

Colon.—The complication to be expected here, causing fever, is peritonitis, general or local. General peritonitis is common. Abscess is not uncommon, and may arise without perforation. Cancer of the cæcum may thus simulate appendicitis. My friend, Mr. Russell Coombe, considers that a moderate temperature is a very common accompaniment of these growths, especially of cancer of the sigmoid.

Rectum.—Local abscess or general peritonitis may occur.

Peritoneum.—Extensions of the cancerous implantation appear to cause temporary rises of temperature.

Gall-bladder.—Here empyema of the gall-bladder, suppurative cholangitis, suppurative pancreatitis, local peritoneal abscess, general peritonitis, and ulcerative endocarditis have all been recorded.

Bile-ducts.—Suppurative cholangitis, with or without miliary hepatic abscesses, is common, and ulcerative endocarditis may arise.

Ear.—The greatest difficulty in diagnosis may be caused by suppuration, which in these growths is scarcely ever absent.

Eye.—Intra-ocular suppuration may be a sequel of intra-ocular growth. Meningitis may also occur.

Pancreas.—It is curious that so little reference can be found to fever in connexion with cancer of the pancreas. But Mr. Dyball tells me he has met with a case in which fever was caused by suppurative cholangitis secondary to carcinoma of the head of the gland.

Prostate.—It would be interesting to know if "growth fever" accompanies the rapid sarcomata of this organ. Fever begins in ordinary cases of cancer when cystitis is set up.

Bladder.—Mr. Dyball tells me that fever begins with cystitis.

Glands in the neck.—My colleague, Mr. Roper, calls my attention to the frequency with which suppuration is associated with large secondary glands in the neck.

Group C.—Afebrile Cancers.

It is not improbable that once sufficient attention has been given to the occurrence of fever in cancer and to its importance in diagnosis some of the cancers which I am now going to enumerate may be found occasionally to cause fever. From the accounts, however, to which I have been able to gain access neither "growth fever" nor "complication fever" occur in them. A few present, it is true, a terminal fever, such as a final brief septic pneumonia in parotid cancer, but such fever has little value from a general diagnostic standpoint.

Kidney.—I have never seen fever in kidney cancer, and can find no account of its occurrence. The fact is curious in view of the rapid growth of renal sarcomata in children. Surely, at least in those cases where pyonephrosis arises from obstruction by the growth, some fever may be present. If not, a tumour in the renal region associated with fever should presumably be suprarenal. But if so, what happens in cases of renal hypernephroma?

Urethra.—One wonders whether periurethral abscess ever occurs. The growth is excessively rare. I have seen one case which was cut into on the supposition that it was an abscess, but I do not remember any fever.

Ovary.—Here growth may be rapid, and one wonders if "growth fever" occurs.

Jaw and parotid.—Both growths may exhibit a terminal fever from septic broncho-pneumonia. Otherwise, I can find no reference to fever.

Other growths.—Of the other growths in the list given above I have nothing to say, except that I can find no record of their producing fever.

Conclusion.

I am very sensible of the shortcomings of this paper. They seem inseparable from a subject to which too little general attention has been attracted. If my remarks succeed in arousing more interest in what appears an important factor in cancer diagnosis, and especially in that form of fever which I have called "growth fever," my object will have been attained.

CEREBRAL REACTIONS FOLLOWING INJECTIONS OF NOVARSENOBENZOL.

WITH A RECORD OF TWO FATAL CASES.

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THERE has been much discussion as to the cause of the severe cerebral reactions, usually ending fatally, which from time to time occur during the treatment of syphilis with arsenical preparations of the salvarsan and neosalvarsan type, and up to the present no general agreement on the subject has been reached. It seems, therefore, important to publish any cases in which the symptoms or pathological findings may be helpful.

The two cases here recorded may be regarded as typical. Both patients were well-developed young adults, apparently healthy except for their specific infection, and presented neither in their past history nor present physical condition any of the recognised contra-indications to arsenical treatment; both developed the usual symptoms of epileptiform convulsions and coma, and both terminated fatally.

CASE 1.—This patient, aged 29, was admitted to the Royal Naval Hospital, Chatham, Dec. 18th, 1919, with a primary sore situated within the left nostril, a papular and roseolar rash, and generalised enlargement of the lymphatic glands of the body. *S. Pallida* was demonstrated in abundance in the intranasal sore by dark ground illumination, and the Wassermann reaction in the serum was positive. On Dec. 22nd 0·45 g. novarsenobillon was given by intravenous injection of concentrated solution. No reaction followed. On Dec. 29th a second injection of 0·6 g. was given. A slight "endotoxic" reaction followed indicated by a rise of temperature to 101·2° F. the same evening, falling to normal level next morning. The unusually long interval of seven days between the injections is due to the Christmas holidays. On Dec. 31st, in the morning, the patient's temperature was 99°, but normal in the evening. He complained of slight headache and appeared nervous and apprehensive as to his condition, but on examination no cause for alarm was found. During the night, however, the signs of severe cerebral reaction developed; the patient became completely unconscious; the teeth were tightly clenched, and the jaws could only be opened with difficulty. Almost continuous convulsive movements of the limbs and facial muscles, suggestive of extensive cortical irritation, were present, and continued until a few hours before death. Incontinence of urine occurred. The pulse was rapid, 140 to 150 per minute, equal, regular, and not of high tension. The temperature, at first normal, rose to 103·4° before death, but hyperpyrexia was not observed as in the case following. Urine withdrawn from the bladder by catheter about 12 hours after the onset of the symptoms was found to contain albumin and blood. The respirations were at first frequent, 40 to 50 per minute, deep and stertorous, but later on, as the respiratory centre was becoming exhausted, became gradually slower, shallower, and weaker, and at times the breathing took on a Cheyne-Stokes character. A moderate degree of cyanosis was present, temporarily relieved by inhalations of oxygen. The patient died at 12.25 P.M. on Jan. 2nd without regaining consciousness, death being apparently due to failure of the respiratory centre.

CASE 2.—A Jew, aged 22, was admitted on Dec. 4th, 1919, with a healed chancre at the base of the penis, a well-defined macular secondary rash, ulceration of left tonsil, and general glandular enlargement. The Wassermann reaction in the serum was positive (Dec. 6th). No contra-indications to arsenical treatment were discovered, and treatment with intravenous injections of novarsenobillon in concentrated solution was commenced. Three doses, beginning with 0·45 g., were given, and were followed by no reactions. A fourth dose (0·6 g.) was administered on Dec. 15th, and 48 hours later the cerebral symptoms appeared. The patient at first complained of slight headache and sore-throat, his temperature being 99·2° F. About ten minutes after being seen the patient suddenly became unconscious and fell into an epileptiform seizure, followed by convulsive movements of the limbs as in the first case, and these continued until a few hours before death. Incontinence of urine occurred. The pupils were equal and contracted; the corneal reflex was not lost until shortly before death. The pulse was rapid, 140 to 150 per minute, but of good volume and moderate tension. Respirations were rapid, deep, and stertorous, but later, as the respiratory centre became exhausted, shallow, feeble, and irregular. Cheyne-Stokes breathing was not observed in this case. A moderate degree of cyanosis was present. The temperature commenced to rise shortly after the onset of symptoms and hyperpyrexia supervened, the axillary temperature rising to 107·4° four hours after the onset of symptoms. Death occurred 11 hours after the onset of the reaction and was apparently due to failure of the respiratory centre.

Treatment.

The treatment of these cases was on orthodox lines and was apparently quite useless. In the first case lumbar puncture was performed and about 25 c.cm. of clear fluid not under abnormal tension were withdrawn. Adrenalin, 1 c.cm., was given hypodermically at the outset, and was repeated later with no apparent benefit. Normal saline solution was injected intravenously, also saline and brandy per rectum. When the cyanosis became marked inhalations of oxygen were given, and, in view of the conclusions drawn later, it is regretted that its continuous administration was not adopted. In the second case, in addition to these measures, 20 ounces of blood were withdrawn from the median basilic vein, and cold sponging and an ice-cap were applied in order to combat the hyperpyrexia. In this case, also, no benefit whatever resulted from the injection of the adrenalin, although it was given freely. The advisability of giving this drug in these epileptiform conditions may be called in question by the experience of Benedek,[1] who gave injections of 1–1·5 c.cm. of suprarenal extract to 19 epileptics, and found that seven of these developed a typical seizure from a half to one and a half hours after the injection.

Autopsies.

At the post-mortem examination in each case the most striking naked-eye pathological change was extreme congestion of the lungs, the condition being most marked at the bases. The lower lobes appeared heavy, dark, and deeply engorged with blood; in places they were airless, and on section dripped blood-stained serum.

In Case 2 no other pathological condition was apparent to the naked eye. There was no abnormal meningeal congestion, and no disseminated punctate hæmorrhages, as described by various observers, were visible in the brain substance. The liver, kidneys, spleen, and other viscera presented a natural appearance.

In Case 1 changes were also observed in the brain and liver, that in the latter organ being probably of post-mortem origin, and consisting of irregular yellowish patches scattered over both lobes and extending about 0·5 cm. below the surface. The meninges appeared healthy, but over the cortex of the cerebrum, especially of the temporal and occipital lobes, the smaller vessels of the pia arachnoid appeared slightly congested. On section the brain appeared normal to the naked eye, with the exception of the optic thalami, especially the right, in which there seemed to be some extravasation of blood from the smaller vessels. The choroidal plexuses were not engorged, and the ventricles contained no excess of fluid. The kidneys presented no appearance of congestion or inflammation, in striking contrast to the pictures seen in the microscopic sections. No pathological changes were noted in the other viscera.

A complete investigation as to the presence of arsenic in the various organs was not carried out, and in view of the rapid elimination of novarsenobenzol, little or no information would be gained thereby. Marsh's test was performed for the presence of arsenic in the brain of the first case, but a negative result was obtained.

Microscopic sections were made of the lungs, kidneys, optic thalamus, and liver of the first case.

Lungs: Sections were made through the deeply congested portions, and stained with hæmatoxylin and eosin and by Heidenhain's iron-hæmatoxylin method. They presented a striking appearance, characterised by interalveolar, and especially interstitial, bleeding from the capillary vessels. Some proliferation of the cells of the epithelial lining of the alveoli, with shedding of the so-called "catarrhal" cells, was also shown. The smaller bronchioles were filled with red blood cells. The most striking feature was the pronounced interalveolar bleeding.

Optic thalamus: Sections were cut through the hæmorrhagic area, and similarly showed extensive capillary hæmorrhage, the blood from the ruptured capillaries lying between the nerve fibres and cells.

Section of optic thalamus stained with iron-hæmatoxylin, showing extravasation of blood between nerve fibres.

Kidneys: In these organs, also, capillary bleeding was the outstanding feature of the sections. The selective action of the toxin causing the condition was well shown, for while the glomerular tufts presented a normal appearance, there was widespread extravasation of blood into, and especially between the tubules from the capillaries of the tubular portion of the organ.

Liver: Sections were made through the areas of discoloration observed at the post-mortem examination. Here, also, capillary hæmorrhages were present, although the bleeding was not so widespread as in the other organs examined.

The feature common to all these sections is therefore the extravasation of blood from injured and ruptured capillaries, the interalveolar bleeding in the lungs being especially remarkable.

On the Causation of Symptoms.

Several hypotheses have been advanced to account for the production of the condition under consideration, and at present that of G. Milian, attributing the symptoms to the vaso-dilator effects of the arsenical preparation acting in a patient with diminished suprarenal activity, is the one most widely accepted. The treatment of the cases by adrenalin given in various ways has been recommended by many authorities. The condition is known by the supporters of this theory as "serous apoplexy." An interesting résumé of the subject is given in *Medical Science* for January, 1920, where some interesting cases are quoted in support of and against Milian's explanation.

Surgeon Lieutenant Commander R. J. G. Parnell,[2] R.N., has recently recorded an interesting case which recovered after the intravenous injection of urotropine and the continuous administration of oxygen, and Surgeon Commander Sheldon F. Dudley, R.N., in a note appended to his paper, advances the opinion that these cases are probably accompanied by anoxæmia, possibly of the type described by Professor J. S. Haldane[3] as due to the alteration of the dissociation curve of oxyhæmoglobin, so that it gives off oxygen less readily in the tissues.

The post-mortem appearances in the two cases here described appear strongly to support Surgeon Commander Dudley's contention, but I would rather refer the production of the anoxæmia not so much to the alteration of the dissociation curve of oxyhæmoglobin but to another condition stated by Professor Haldane[4] to be a factor in causing anoxæmia—that is, defective saturation of the arterial blood

with oxygen, owing to swelling, exudation, or other abnormality in or around the alveolar walls, preventing the diffusion of oxygen inwards quickly enough to saturate the blood in the limited time during which it passes through the alveolar capillaries.

The swelling or shedding of the lining cells of the alveoli and the widespread interalveolar and interstitial hæmorrhage seem quite sufficient to bring this about, and the capillary bleeding in the brain and other organs would further prevent the tissues from obtaining their requisite amount of oxygen from the already anoxæmic blood. The same process taking place in the kidneys, acting in the same way, would be a sufficient cause of the anuria or albuminuria described in many cases and attributed to the direct toxic action of the arsenic. The forced breathing, rapid, deep, and stertorous, which occurs in these patients would also tend to increase the degree of anoxæmia.[5]

Conclusion.

The conclusion arrived at is that the widespread capillary hæmorrhages, demonstrated by microscopic sections, afford a clear anatomical basis for the hypothesis put forward by Surgeon Commander Dudley that the symptoms are due to anoxæmia, that this anoxæmic condition is mainly produced by interalveolar hæmorrhage into the lungs, and to a less extent by interstitial capillary bleeding into other organs, and that the *continuous* administration of oxygen as carried out by Surgeon Lieutenant Commander Parnell offers the best hope of recovery in these unfortunate cases.

These appearances would also seem to explain in part the rapid development of the symptoms and the comparatively slow recovery, as instanced by Surgeon Lieutenant Commander Parnell's case, resulting from the continuous administration of oxygen.

I wish to express my thanks to Surgeon Commander E. L. Atkinson for his kind assistance, especially in preparing the accompanying photomicrograph.

References.—1. Wien Klin. Wchnschr., 1918, xxxi., 1365. 2. THE LANCET, Jan. 24th, 1920. 3. Brit. Med. Jour., July 19th, 1919. 4. Loc. cit. and Brit. Med. Jour., Jan. 31st, 1920, p. 151. 5. Loc. cit.

TRAUMATIC RUPTURE OF THE HEART.

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TRAUMATIC rupture of the heart is generally due either to gunshot or to stab wounds. These being commonly received in front, one or other of the right chambers of the heart is the usual site of the rupture. Such ruptures, where not immediately fatal, offer a prognosis distinctly better than do spontaneous ruptures. The wound in the pericardium permits the escape of blood from that sac and so diminishes the risk of rapidly fatal embarrassment of the heart's action; the circumstances of the case, the site, and direction of the wound in the body wall make diagnosis less difficult and so facilitate treatment, and the patient and his heart tissue are often healthy. That such ruptures of the heart have been recovered from, with and without operative treatment, is familiar enough.

An Unusual Case.

The following case is of interest for two reasons—because of the nearly complete absence of skeletal and superficial injury following upon extreme violence and because of the unusual nature and circumstances of the heart's rupture.

A well-built, healthy shipwright, aged 23 years, sustained a clean, unbroken fall of 45 feet, alighting on a wooden plank and some steel plates lying on the ground. The precise position of his body at the end of the fall was not known. He was not killed outright, but was dead on his arrival at hospital some 20 minutes later.

On post-mortem examination of the body about six and a half hours after death rigor mortis had not begun. Preliminary inspection revealed no damage beyond a few scratches and bruising at the right elbow. A deliberate examination by inspection and palpation showed no further evidence of bruising, laceration, fracture, or dislocation. The peritoneal cavity contained about 2½ to 3 pints of fluid blood, of which the source appeared to be five transverse lacerations of the right lobe of the liver—four on its upper, one on its under surface immediately to the right of the transverse fissure. There was a considerable quantity of blood effused into the retroperitoneal tissue. There were two transverse tears about half an inch apart on the front of the right kidney near its middle, one through little more than the capsule, and one about ¼ inch in depth through practically the entire width of the kidney. No other source of retroperitoneal hæmorrhage was found. No other abdominal injury was discovered.

I failed to identify the source of a moderate extravasation of blood into the cellular tissue of the posterior mediastinum. This blood extended to the back of the root of each lung underneath the pleura, but not into the substance of either lung, which, indeed, appeared to be normal throughout. The pericardium was intact and contained about a pint and a half of fluid blood. After considerable search a slit-like opening into the cavity of the left auricle was found, about a quarter of a centimetre in length, and situated exactly in the length of the free edge of the left auricular appendage.

Professor S. G. Shattock kindly made a microscopical examination of the appendage wall, and reports that there is no trace of any form of disease.

Remarks on the Case.

The height above the ground of the planks from which deceased fell was 45 ft., and the fall was unbroken. The injuries were thus caused by the violent impact of the body against the plank and plates on the ground. The visceral injuries, and particularly the fact that the ruptures in the liver and right kidney were transverse in direction, suggest antero-posterior compression of the trunk, and the complete absence of bruising of the body wall is remarkable. It would seem on first thought almost incredible that such a fall should occasion no injuries other than visceral. It is probable, however, that such cases are not so very uncommon, and it is therefore important that they should be recorded, as the question is one of considerable legal importance.

In this case the nature and accompanying conditions of the cardiac rupture raise questions as to the mode of its production. Cases of cardiac rupture are commonly divided into two classes, spontaneous and traumatic. The former occur from within because a local weakness of the heart's wall renders it there unable to withstand the pressure of the contained blood. Such local weakness is most commonly the result of disease, and its favourite seat is the left ventricle. Spontaneous rupture of the entire thickness of the heart's wall is rapidly and, doubtless, invariably fatal, because the shed blood, accumulating within the intact pericardium, quickly embarrasses the heart's action to the point of stoppage, and because it is practically impossible to diagnose and so directly treat the condition in the short time available. That spontaneous rupture of a quite healthy heart ever occurs may be doubted. A cautious reference to a possible case of this is given in Wilks and Moxon, "Pathological Anatomy" (p. 120).

Delayed Traumatic Rupture of the Heart.

But there are cases of traumatic rupture of the heart without wound of the pericardium, and these tend to resemble cases of spontaneous rupture in their rapid course. Again, trauma may cause injury of the heart's wall without immediate rupture, but after an interval the injured area may prove the site of a rupture, which may be described as "delayed traumatic" or "spontaneous" according to predilection. Where the interval between the receipt of injury and death is considerable difficult questions about the cause of death may be raised by claims for monetary compensation or damages for fatal accidents.

An excellent illustrative case of delayed traumatic rupture of the heart has been described to me by my colleague, Dr. J. Donaldson, as occurring in his practice.

The patient was a bricklayer, aged 68, unusually deep-chested, who enjoyed good general health. He was working beside a large iron pipe close to which were the rails on which bogey trucks ran. On the approach of a truck he stood with his back pressed close against the pipe in order that the truck might clear him. Owing to his depth of chest the truck which had cleared others just failed to clear him, and squeezed the front of his chest, scraping the skin, but doing no further apparent local injury. He was in bed for two weeks and resumed work after three weeks. His pulse-rate showed no departure from the normal, and his general condition called for no special remark or anxiety. After three days' resumption of work he felt unable to

continue, his chief complaint being pain in the chest. He was confined to bed again for two weeks, during which his pulse-rate rose gradually from 30 to 60. He appeared to be progressing favourably when he suddenly died. A post-mortem examination revealed no injury of any part of the chest wall, except the scraping of the skin. The pericardium was intact and full of blood. No disease of any part of the heart substance was found. The left ventricle alone was injured. Its wall was bruised in five places, three in front and two behind. The largest bruise, the size of a shilling and extending through the greater part of the wall's thickness, was in front near the apex. Here the ventricle wall was ruptured.

Results of Pressure.

Traumatic rupture of the heart within an intact pericardium is almost certainly due either to compression or concussion. Pressure may act in two ways. It may either directly injure the heart tissue (by bruising) so that the injured part gives way immediately or later, or else, without directly injuring the heart tissue, it may so raise the intracardiac blood pressure that the healthy heart wall is burst from within. Compression depends on the amount of force, concussion on the rapidity of its application. In Dr. Donaldson's case the circumstances suggest that compression alone was operative, the heart being squeezed between the front and back of the thorax. Professor Shattock has been kind enough to inform me of three cases of traumatic rupture with intact pericardium. Two of these are among the "gunshot" injuries from the seat of war in the Royal College of Surgeons of England.

In one (specimen No. 657) there was a shell wound of the skin in the left midaxillary line, comminuted fracture of the fourth and fifth ribs, and laceration of the left lung. The anterior wall of the left ventricle shows a vertical perforation occupied by clot in which no missile was found, and no wound was found in the pericardium. The interval between the times of wound and death is not mentioned. Such an injury points to contusion of the heart wall by the broken ribs acting through lung tissue and pericardium. Its mode of production also permits of the action of concussion. The latter factor may have been still more operative in the other gunshot case (specimen No. 486) in which there was a non-penetrating wound of the thoracic wall, without fracture of ribs or sternum, the pericardium was found distended with blood, and the anterior wall of the right ventricle showed a minute rupture. In the third case, related to Professor Shattock by Mr. C. F. Beadles, a lunatic was struck on the chest with a spade. A rupture of the heart was found without fracture of bone.

In these two last cases, as in that of the shipwright, the circumstances suggest that concussion, as distinct from compression, *may* have played a part. But what that part amounted to it is impossible to calculate. In the shipwright's case the fact that the heart wall showed no sign of injury except the rupture itself indicates that pressure probably operated through its effect on the blood within the left auricle. This would be most effective when the auricle was at its maximal distension, and the site of the rupture suggests that the incidence of the pressure on the distended auricle has been such as to tend to drive the contained blood away from the natural openings and towards the blind extremity of the chamber.

PROPOSED HOME FOR INVESTIGATION AT HARROGATE.—The establishment at Harrogate of a clinic for the investigation (as opposed to the prolonged treatment) of chronic diseases and of disorders of metabolism, on lines similar to those of the well-known Duff House, Banffshire, is in process. Suitable premises are being adapted to accommodate 30 beds in the first instance, further extensions being made as the need arises. The staff will consist of a resident physician, visiting physicians and surgeons, a radiologist, and a pathologist. Certain members of a fully trained nursing staff will be detailed to control the department of dietetics. Special lines of investigation will be undertaken as opportunity offers, and the results will be collated and published from time to time. It is stated that the scheme is to be constituted as a limited liability company nuder the management of a board of directors, on which the medical profession is to be represented in sufficient numbers to ensure that the institution is conducted on lines conformable with professional requirements and traditions.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

CONGENITAL STENOSIS OF THE AORTA.

BY R. O. MOON, M.D. OXON., F.R.C.P. LOND.,
PHYSICIAN, NATIONAL HOSPITAL FOR DISEASES OF THE HEART, WESTMORELAND STREET, W.

THE special points of interest in this case are the very few symptoms calling attention to the heart, combined with the pronounced physical signs and the comparatively slight impairment of the boy's general activity.

D. R., a boy, aged 11 years, came as an out-patient to the Heart Hospital in March, 1919, complaining of "headache, looseness of the bowels, and some recent epistaxis." There was nothing of importance in the family history. During the first 18 months of his life he had apparently been somewhat delicate, and in the early weeks of infancy his mother said that "he had seemed to strain for breath at times," but had never been taken to a doctor for it. When 18 months old he had measles and shortly afterwards he was taken to the Children's Hospital, Kensington, when the parents learnt for the first time that his heart was diseased.

At the age of 3½ years he is said to have brought up a large quantity of blood, which seems to have been vomited, and was taken to St. Mary's Hospital, where he remained for six weeks and "congenital morbus cordis" was diagnosed, a thrill over the aortic area and a basic systolic murmur being specially noted. After this his general health remained good apart from occasional attacks of epistaxis. He would, however, often complain of headache and have to stay away from school for a day or two on that account. He was always active and energetic and could always walk a fair distance and even play football without becoming breathless or tired, though he got breathless sooner than other boys. In general appearance he was distinctly undersized, very pale, but bright and intelligent-looking. The apex beat was in the fifth space in the nipple line with a somewhat forcible cardiac impulse and the dullness a trifle increased to the left. Over the aortic area there was a very coarse systolic thrill, which was also palpable over the carotid arteries. All over the præcordial area there was a harsh systolic murmur, having a maximum intensity at the second right interspace, where it could be heard several inches from the chest wall. Pulse was small in volume, rate 70.

The X rays showed nothing abnormal, but in the electrocardiogram the T-wave was inverted in Leads II. and III., while in Lead III. the P-wave was inverted. There was no evidence of left-sided preponderance. The Wassermann reaction was negative. The boy was brought back to the hospital six months later, feeling quite well, for permission (which was given) for an anæsthetic for the removal of teeth. Some three weeks later I heard that he had died quite suddenly at school, having seemed perfectly well in the same morning.

Dr. K. E. Eckenstein, who did the post-mortem, found a much enlarged thymus gland. Lungs, liver, spleen, and kidneys were normal. The heart weighed 8½ oz. Thickness of left ventricular wall 3-3·5 cm.

Professor Sir G. Sims Woodhead kindly made a special examination of the heart for me, and his report is as follows:—

There is well-marked evidence of old endocarditis on the left side, though little on the right side. The aortic cusps are enormously and irregularly thickened, "cartilaginoid," rigid and adherent at the angles, with rounding and retraction at the margins. During life, owing to stenosis, this must have given rise to marked interference with the passage of the blood from the ventricle to the aorta with, in all probability, a certain degree of regurgitation through incompetence from the rigidity of the valves and thickening and irregularity of their margins. At one point near the edge, and apparently at the junction of two cusps, is a slightly more recent fibrous mass, which seems to me to be an indication that the process of cicatrisation and fibrous tissue formation has been going on intermittently for a considerable period. At the base of the mitral flap, just below the aortic valve on the ventricular side, there is some thickening and fatty (?) degeneration, apparently the result of some past inflammatory condition. The mitral valve itself appears to be slightly contracted, and on the side of the ventricular wall divided by two indentations, also indicating mischief at some very remote period. The ring at the base of the valve is irregular, but I do not think there has been either obstruction or incompetence in any marked degree, though the thickening of the ring and the imperfect closure may have allowed of some reflux and of the formation of fluid veins as the blood passed directly through. The marked stenosis has led to very great hypertrophy of the wall of the left ventricle, but the muscle appears to be sound, though at points where the musculi papillares join the chordæ tendineæ, and from some distance down into the muscle there is an increase of fibrous tissue. This, however, is not an important feature. There is little or no dilatation. In the hypertrophied muscle there appears to be an increase in the amount of fibrillar tissue; this, of course, being much more marked near the endocardium where the endocarditis is a prominent feature.

The external cusp of the tricuspid valve appears to be similarly irregularly divided, slightly thickened and retracted, and is very interesting. The pulmonary valves are normal. There was no abnormal communication between the chambers.

Remarks.

While coarctation of the aorta—i.e., the constriction of the descending arch—at a point between the left subclavian and the insertion of ductus arteriosus, though among the rarer of congenital abnormalities is yet not so very uncommon, a congenital stenosis at the level of the aortic valves is exceedingly rare; when it does occur it is usually due to the absence of one of the sigmoid valves and the exaggerated development taken on by the two others, the physical signs being those of an acquired aortic stenosis. The slight degree of impairment of general activity in view of the great contraction of the aortic orifice is, no doubt, partly explained by the great hypertrophy of the muscular tissue of the left ventricle, which was quite healthy, and the absence of any appreciable dilatation. This healthiness of the muscular tissue militates against the usual supposition that an inverted T-wave in Lead II. is indicative of myocardial degeneration. The pathological significance in this case of an inverted P in Lead III. I am unable to explain, apart from the fact that the auricular impulse must have arisen at an abnormal focus.

Montagu-square, W.

OBSTRUCTION DUE TO THE FORMATION OF A SPUR AFTER FINNEY'S OPERATION.

BY R. P. ROWLANDS, M.S. LOND., F.R.C.S. ENG.,
SURGEON TO GUY'S HOSPITAL.

IT may be remembered that in Finney's method of gastro-duodenostomy the pylorus, the pyloric end of the stomach, and the first part of the duodenum are, if necessary, thoroughly freed from adhesions, and the contiguous borders of the stomach and duodenum are incised downwards from the strictured pylorus for 2½ to 3 in. In this way the pyloric opening is greatly

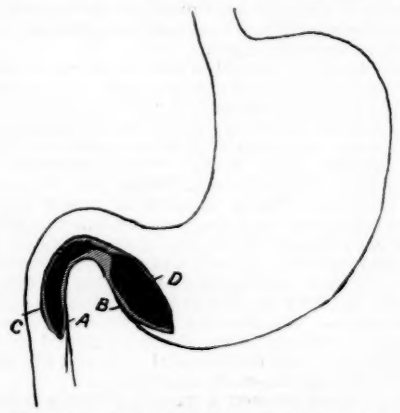


FIG. 1.—Finney's operation. The incision is along the contiguous borders of the stomach and duodenum ‡ in. in front of the great omentum. A and B are sewn together and D and C are sewn together.

and permanently enlarged and pyloric spasm is prevented. (See Fig. 1.)

The following case, in which Finney's operation for gastro-duodenostomy had been performed, is, as far as the writer knows, unique. A spur formed below the anastomosis and almost completely hindered the exit of food from the stomach, with the result that the patient became so extremely thin that malignant disease was feared. An operation was only undertaken as a forlorn hope. Gastro-jejunostomy completely relieved the patient, who has since then ceased vomiting and has gained much weight.

L. J., a married woman, aged 40. Neurotic and thin. Had suffered for several years from indigestion, vomiting, and hæmatemesis. A diagnosis of gastric ulcer was made and she was admitted to Guy's Hospital for operation two years ago. A chronically inflamed appendix was removed and a dilated prolapsed stomach, with an ulcer on the lesser curvature 3 in. from the pylorus, was found. The pylorus and duodenum were movable and healthy, and as the stomach was much dilated and the patient of the neurotic type pylorospasm due to the gastric ulcer was thought to be an important element, and Finney's operation was chosen instead of gastro-jejunostomy. This was easily performed, a 3½ in. opening being made. The patient did very well while in hospital and went home within three weeks. Unfortunately, her doctor died just then, and his partner being at the war no one supervised her after-treatment.

Before very long vomiting returned and gradually increased and the patient lost flesh during the next two years. She was readmitted to Guy's in February, 1920, extremely emaciated, weighing only 5 st., and was examined thoroughly by radiography and chemical analysis of the gastric juice. Both these examinations were unsatisfactory because the patient vomited almost immediately after swallowing anything. The gastric shadow was small and distorted, and there was marked achylia. It was therefore suggested that she had a gastric carcinoma high up. Cardiospasm or other obstruction of the œsophagus was, however, definitely excluded by the X ray examination. As a last resort I explored the abdomen and was surprised to find a greatly dilated hypertrophied stomach; the ulcer had quite healed, leaving no trace beyond a small scar. The pyloric end of the stomach was greatly dilated and rounded off, the first part of the duodenum having become part of it. (See Fig. 2.) It was then recognised that there was a valvular obstruction between the stomach and the duodenum, and a posterior gastro-jejunostomy was rapidly performed. The patient went out of hospital eating almost full diet, putting on weight and gaining strength, and four months later I heard that she was doing well.

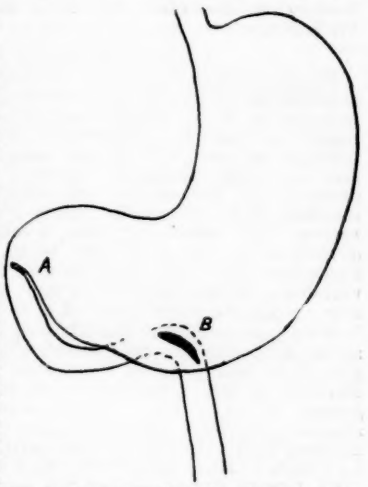


FIG. 2.—Spur formation after Finney's operation. A, Spur. B, Opening made at secondary gastro-duodenostomy.

The Advantages and Disadvantages of the Operation.

It is claimed that Finney's operation is easy and simple, and can be performed in a very short time. This is a distinct advantage when pyloric stenosis coexists with hour-glass contraction, and has to be treated after gastro-gastrostomy in a feeble patient. It is also claimed that the size and position of the new orifice are such as to provide free drainage of the stomach, unless the latter is greatly dilated and atonic; that spur formation and the development of a vicious circle are impossible, and that there is a special freedom from post-operative nausea and vomiting. The operation is thus peculiarly valuable for nervous women (regurgitation of bile does occur in some cases, however); even a large ulcer may be removed from the anterior aspect of the pylorus, stomach, or duodenum without fear of subsequent cicatricial contraction. There is no risk of jejunal ulceration after this operation. It does not interfere with digestion in the duodenum or with the reflex secretion of bile and pancreatic juice; hence absorption should be a little better than after short-circuiting.

Disadvantages.—Although the operation is a great improvement on pyloroplasty, the separation of adhesions is troublesome and may be dangerous. The after-results are not quite so good as those of gastro-jejunostomy. It is contra-indicated in most cases of active ulceration or with dense adhesions, and its mortality is higher than that of gastro-jejunostomy. The mesogastrium may be too short or the duodenum may be too fixed to allow easy approximation of the parts, which may then have to be joined in the depth of the wound. To these disadvantages the slight risk of spur formation must be added. This complication would seem more likely to happen with a greatly dilated prolapsed stomach and freely movable second part of the duodenum. A large opening, extending well down the gastric pouch, would diminish the risk.

Queen Anne-street, W.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OPHTHALMOLOGY.

EXHIBITION OF CASES AND SPECIMENS.

A CLINICAL meeting of this section of the Royal Society of Medicine was held on June 9th, Mr. W. T. HOLMES SPICER, the President, being in the chair.

Perithelioma of the Lid (?)

Mr. R. S. CHARSLEY showed a specimen of what he regarded as Perithelioma of the Lid. The tumour had been mistaken for an ordinary meibomian cyst by the practitioner and incised by him. When the case was referred to the exhibitor he removed the tumour, and the man remained in good health for two months. At the end of that period, however, the temporal bone began to enlarge, and the patient became less vigorous. Two months later still he developed weakness in the spine, and ultimately curvature there, probably due to a recurrence in the vertebræ. Death took place six months after the tumour became prominent. A pathologist pronounced it to be perithelioma. Mr. Charsley found the tumour at the operation was encapsuled, was easy to remove, and there had been no recurrence in situ when the man died.—Mr. TREACHER COLLINS regarded the growth as an alveolar sarcoma.—Mr. M. S. MAYOU alluded to the large size of the cells in the tumour, and inclined to the view that it was perithelioma. He had seen such tumours break down into soft caseous masses.

Mr. LESLIE PATON related the particulars of a case of Endothelioma of the Orbit, which he removed, completely in his own and others' view, but there was a progressive spread subsequently to the various glands of the body, the death two years after the appearance of the original growth having been directly due to a large mediastinal growth of the same nature.

Neuro-fibromatosis.

Mr. A. W. ORMOND showed a case of Neuro-fibromatosis (von Recklinghausen's disease). There was extensive pigmentation over the body, especially on the parts usually coloured, and there were many soft tumours, which felt like fibro-lipomata. The man was 28 years of age, a gardener, and his complaint on coming to the hospital was of headache and failure of sight. The vision was 6/18 in each eye, and there was optic atrophy as a sequel of papillœdema. Wassermann reaction was negative. The patient's hands and feet were larger than normal, and the supra-orbital ridges were very prominent; there was also some kyphosis. The tumours were not tender on manipulation. The systolic blood pressure was 105 mm., the diastolic 80. He thought the association of conditions pointed to over-action of the pituitary body, not unlikely to be due to a condition affecting the fibrous tissue at the base of the brain. Alexis Thomson had shown that in the recorded cases practically all the cranial nerves, in one or other of them, had been involved. Mr. Ormond exhibited skiagrams of the skull.—Mr. J. H. FISHER thought that probably there had been an irritation of the pituitary body, causing the hypersecretion which eventuated in the acromegaly.

Cyst of the Iris.

Mr. W. H. MCMULLEN exhibited a patient with Cyst of the Iris. It had been dealt with by iridectomy, part of the cyst being removed. There was no history in this case of injury with resulting implantation of epithelium, the usual course of events in these cases. The condition was noticed when the child was less than a year old, hence it was either congenital or had developed at a very early age. As the tension of the eye was normal and the condition appeared to cause no inconvenience, he proposed to leave it alone.—Mr. FISHER related a similar case, and thought there had probably been an accidental puncture which had not been noticed and which quickly healed up.—Mr. TREACHER COLLINS pointed out that cysts of the iris did sometimes arise without there having been a puncture injury. Endothelial cysts could be cured by transfixion, and he related a case in point.—Sir WILLIAM LISTER thought the careless habit of some women of putting pins and needles in pillows and cushions might be answerable for some of these cases; the baby might be put on to such a pillow and nothing wrong be noticed, as there would probably be rapid healing.—Mr. ORMOND supported Sir William Lister's view, and spoke of three or four cases he had had fairly recently in which the parents had no idea of how the condition was caused.

Other Cases Shown.

The PRESIDENT exhibited a patient who had Horse-shoe-shaped Opacities in the Cornea. The only complaint was a gradually diminishing vision during the last few years. No other member of the family had a similar condition. The history obtainable was purely negative.

Mr. G. W. ROLL showed a child, aged 3 years, the subject of Herpes Ophthalmicus. The attack occurred in February last, simultaneously with chicken-pox, the eruption remaining on the brow. Part of the eruption was along the nasal nerve to the tip of the nose, and the cornea also was involved. The intimate connexion between chicken-pox and herpes ophthalmicus had been noted by many observers. He referred to other cases of the condition.

The PRESIDENT and Mr. FISHER related similar cases.

Mr. J. F. CUNNINGHAM brought forward a case in which a mass obscured the optic disc. The school medical officer discovered the defective vision, and the father brought the boy to the ophthalmic hospital, where a history of trauma was elicited.

Dr. RAYNER BATTEN showed a case of Superficial Punctate Keratitis, which had persisted two years and proved very resistant to a great variety of treatments.

The PRESIDENT mentioned a similar case in his own practice, in which the treatment seemed equally hopeless. In that case the disease, after a number of years, appeared to wear itself out.

Mr. MCMULLEN showed a second case, one of Congenital Malformation in the Outer Canthus, an appearance unique in his experience and in that of others whom he had shown the patient to. The outer extremities of the left lids were separated by a low pad or cushion of tissue covered with skin. The suggestion of an amniotic band and adhesion before the displacement which had been made seemed a likely one.—Mr. TREACHER COLLINS said the case reminded him of the class of case described by Sir George Berry, of which the speaker had himself had examples, in whom there was a remarkable symmetrical flattening of the malar bones, causing him at first to suspect that the patients were brothers. He thought the condition was best explained on the hypothesis of some delayed closure of the cleft between the fronto-nasal plate and the superior maxillary plate at the outer canthus.

Mr. M. L. HINE showed a case in which a sebaceous horn had become malignant, had recurred after removal, and was very greatly improved by a single eight-hour application of radium. The case was still under treatment and observation.

The concluding exhibits were a case of Furrow Keratitis by Mr. P. G. DOYNE and a specimen of "Daylight Glass" by Mr. W. WALLACE, such as had been evolved from the investigations in Cornell University, U.S.A. It was very largely employed in that country for microscope work, and was also used in many large factories.

NORWICH MEDICO-CHIRURGICAL SOCIETY.

EXHIBITION OF CASES AND SPECIMENS.

A CLINICAL meeting of this society was held at the Norfolk and Norwich Hospital on June 1st, when a number of interesting and unusual cases were shown.

Dr. H. MUIR EVANS (Lowestoft) exhibited two specimens of Uterine Myomata with Complications, and Sir HAMILTON BALLANCE exhibited the following

specimens: (1) prostate removed entire from a man of 76, showing a well-marked middle lobe; (2) large papilloma growing from the anterior wall of the bladder, removed from a man of 65; (3) pylorus and adjacent parts of stomach and duodenum, showing a malignant growth, removed from a woman of 50.

Sir H. BALLANCE also showed the following cases:—

1. Boy, aged 6, with severe double congenital talipes equino-varus. The left foot had been operated on—the astragalus, navicular, cuboid, and some of the anterior part of the os calcis had been removed. There was still some displacement inwards of the anterior half of the foot to be corrected.

2. Man, aged 34. Gunshot wound of the left arm four and a half years previously, causing complete and permanent paralysis of the musculo-spiral nerve with wrist-drop. The palmaris longus tendon was divided and sutured to the long extensor of the thumb, the flexor carpi radialis to the common extensor of the fingers, and the flexor carpi ulnaris to the extensor carpi ulnaris.

3. Man, aged 29. Wounded five years ago in left chest and abdomen, portions of the seventh and eighth ribs being carried away. Four years ago silver-wire filigree, 4½ in. by 3 in., was inserted to cure a hernia where the ribs were missing. At the present time the patient has great discomfort from a large hernia of the stomach through the diaphragm into the left side of the chest, which it is proposed to operate upon. The heart is displaced to the right. Two skiagrams taken with bismuth in the stomach were shown, one with the patient standing up and the other when he is lying down. The wire filigree appeared in position.

Mr. G. MAXTED showed a very interesting case of Congenital Coloboma of the Disc, which had been at first diagnosed as a case of glaucoma.

Mr. A. J. BLAXLAND showed a case of Excision of the Rectum, with preservation of the external sphincter. He also showed a case of Sprengel's Shoulder (congenital elevation of the scapula), though some of the members did not agree as to the diagnosis.

Dr. MUIR EVANS exhibited a case of Renal Dwarfism in a girl of 17, in which the prominent symptoms were arrested growth, difficulty in walking, marked genu valgum, enlargement of the ends of the ribs, combined with a urine of low specific gravity (1005) containing a considerable amount of albumin, and a low blood pressure (80). He referred to several cases of renal disease associated with bone changes which had been described by Dr. Hugh Barber, of Derby, in a paper published in THE LANCET last January.

Dr. H. J. STARLING brought forward a case of the rare condition known as

Coarctation of the Aorta.

The patient was a pensioner, aged 40, who had been before the war a railway labourer, doing heavy work. He enlisted in June, 1915, and was sent to Mesopotamia in January, 1916, when he began to have dyspnœa, and was transferred to a hospital in India for V.D.H., thence to Alexandria, where the case was diagnosed as aortic aneurysm. He was sent to England and discharged in August, 1916, for V.D.H. and orchitis, and has done no work since. Present symptoms are pain round the precordium and dyspnœa on exertion. Pulse-rate is 76, after 40 hops 100, after one minute 80. X rays show no evidence of aneurysm. The apex beat is heaving, in the fifth space just outside the nipple line. A blowing systolic murmur can be heard at the apex in all postures, and the aortic second sound is accentuated. The subclavian, radial, and carotid arteries are hard, full, and heaving. The blood pressure in the brachial artery is 255–148. The abdominal aorta and the femoral and popliteal arteries are difficult to detect, and the blood pressure in this system is too low to be estimated accurately. There is a mass of varicose arteries in each axilla, and tortuous arteries can be seen or felt under the skin in the areas supplied by the intercostal, mammary, epigastric, and other arteries. The course of the blood is from above downwards.

Dr. Starling said that this condition was due to a partial or complete obliteration of the aorta just below the left subclavian artery. 142 cases had been recorded, 9 in infants and 133 in adults, 92 being males and 41 females; the majority had died between 20 and 40 years of age, but one case lived to the age of 92.

Pellagra.

Dr. G. A. GOLDEN, assistant medical officer, Norfolk County Asylum, showed a case of Pellagra in a female patient, the subject of chronic mania with dementia. The characteristic sun-burnt appearance of the backs of the hands and wrists was well marked, and there was a pustular eruption round the mouth, though the rash was not so marked as it had been the day before. Dr. Golden could not account for the causation of the disease in this case, but referred to some similar cases which had occurred at Napsbury Asylum, and were recorded by the late Dr. G. S. Blandy in THE LANCET of Sept. 6th, 1913. Dr. Golden said that pellagra was practically unknown in England, except for its occasional occurrence in asylums.

Reviews and Notices of Books.

TRAITÉ DE L'IMMUNITÉ DANS LES MALADIES INFECTIEUSES.

By JULES BORDET. Paris: Masson et Cie. 1919. Pp. 720. Fr.40.

IT is nearly 20 years since the appearance of Metchnikoff's "Immunity," and among the various later volumes on the subject which have been published none has covered the ground in quite the same broad way. The accumulation of details on the basis of the generalisations of Metchnikoff and Ehrlich has been tremendous; good, bad, and indifferent data have been heaped on top of one another into chaotic piles; many earnest immunologues have been too busy doing Wassermann's test in an improved way, or quarrelling about anaphylaxis to try to make out what it all means; it has been easier to give a dose of vaccine or to invent a fresh penny-in-the slot diagnostic test. The inspiration of the fundamental theorems of the "nineties" has been dying away, and in the absence of any general ideas to replace them serology has drifted into what bears a tolerable likeness to a blind alley. It is plainly time to take a serious survey of the position, and Bordet's sane, sensible discussion of the facts and fancies of immunity is not the least of the many conspicuous services he has rendered to the study of infection. He provides a well-balanced review of immunity as a wide biological problem rather than as a by-path of medicine. Like many good books, it asks more questions than it answers, and carries with it that placid stimulation which is the comfort of the scholarly products of learned men.

The author has been in the thick of the subject from the beginning, and he weaves together the old facts and the very real progress of recent years into a tale so coherent that his readers will feel that the ground is strong enough to carry the fresh investigations which his pleasant narrative will stimulate them to undertake. Of course, the whole of "immunity" is not in the book; anyone who wants to will probably find the section on his own pet topic defective. No one could make a place for all the trees, real and sham, in his picture of this particular wood. But the picture, as a whole, is a very good one, and the new committee on biological drugs might well set it as a compulsory text for manufacturers of sera and vaccines.

There are some dreadful omissions—no index and no references to literature, and the table of contents is quite inadequate. The author remarks in the preface that a bibliography would have been too much trouble, and recommends those who want further details to hunt up the names (which he quotes, mostly with dates) in the *Bulletin* or *Centralblatt*. It is exasperating that no one finished off the book properly when the author got bored, for these mechanical defects greatly damage its use for reference.

MANUAL OF VENEREAL DISEASES FOR STUDENTS.

By Colonel L. W. HARRISON, D.S.O., M.B., Ch.B. London: Henry Frowde and Hodder and Stoughton. 1920. Pp. 360. 27*s*. 6*d*.

THE author has produced an excellent text-book for students. A "Manual of Venereal Diseases for Students" bears a very great resemblance to the "Diagnosis and Treatment of Venereal Diseases in General Practice," a work that has had an extremely favourable reception from the profession. We confidently anticipate that the Manual for Students will be as favourably received. Little has been lost in the process of condensation. Some useful chapters have been added. A brief description is given in Chapter IV. of the technique of urethroscopy and of the common lesions seen during such an examination. The importance of instituting the most stringent tests of cure in the case of gonorrhœa has been rightly emphasised. Chapter V. is devoted to the difficult subject of gonorrhœa in women, a side of venereal disease that was formerly neglected in many text-books, but the supreme importance

of which is now universally recognised. The author is cautious and non-committal when dealing with the subject, and Chapter XXVI. is perhaps less convincing to the reader than any other portion of the book. However, the subject is admittedly a difficult one, and one on which it is impossible yet to write with any certainty—much clinical experience remains here to be recorded before dogma becomes possible. Four useful appendices have been added to the book. The first of these gives a sketch of the principles underlying complement-fixation tests, and the second a description of common stains used in the detection of micro-organisms. The third and fourth appendices furnish formulæ for use in the treatment of gonorrhœa and of syphilis respectively. Additional coloured plates and illustrations appear in the new Manual and contribute considerably to its interest.

Although written primarily for the student, the Manual of Venereal Diseases will appeal with equal force to the general practitioner. It is eminently a practical work, and the amount of information it contains within its 360 pages is prodigious. When the small amount of knowledge of venereal diseases that has been demanded of medical examinees in the past is considered, the quantity of information set before the student by Colonel Harrison appears at first sight somewhat overwhelming. However, as the author states in his preface, the importance in medicine of gonorrhœa and syphilis cannot be easily overestimated. In the past the student's knowledge of these diseases has been totally inadequate, and it is only within the last few years that this has been apparent. A text-book of the quality of Colonel Harrison's Manual of Venereal Diseases should do much to repair this omission. The work should receive favour from student and qualified practitioner alike.

MODERN ANÆSTHETICS.

Second edition. By J. F. W. SILK, M.D. London: Edward Arnold. 1920. Pp. 191.

THIS little book remains an eminently pleasant one from which the student can learn the elements of the theory and practice of anæsthetics. The second edition has been kept to about the size of the first, although the latest developments are duly recorded. Dr. Silk had the advantage of acting as consulting anæsthetist during the war, which gave him an unusually wide view of the practice of other men, and he has not failed to utilise the experience. His own preference, if he were asked for a routine anæsthetic, appears to be for open ether with 3 per cent. chloroform, and he is fond of the Rendle's inhaler. We think he dismisses the management of abdominal cases a little cursorily, and that he might with advantage have added a paragraph on anæsthetics in labour.

DOMUS DOLORIS.

By W. COMPTON LEITH. London and New York: John Lane. 1919. Pp. 222. 7*s.* 6*d.*

Hooker, the great English seventeenth-century divine, once wrote a panegyric on the Psalms which he had adapted from an exposition of Torquemada the Dominican, and part of it ran thus:—

"Heroical magnanimity, exquisite justice, grave moderation exact wisdom, patience unfeigned, unwearied patience, ... all good necessary to be known or done or had, this one celestial fountain yieldeth. Let there be any grief or disease ..... any wound or sickness named, for which there is not in this treasure house a present comfortable remedy at all times ready to be found."

This passage always seems to us as applicable to the treatment of sickness and wounds as to the treatment of souls, and we think it more than probable that Mr. Compton Leith had it in mind when he wrote the very charming essay on a hospital which is now before us, and that all the more as his writing is saturated with seventeenth-century rhythms. His is a striking book, and any reader who has worked in a hospital will feel even more proud of having done so than he did before. Anyone, moreover—and there are all too many to-day—who has been a patient should feel grateful to Mr. Leith for having set out in noble words the feelings which he should possess but may be unable to express. The praises of the staff, the consciousness that all who work in a hospital are members of a great fellowship, the parallel drawn between a hospital and a university, are finely imagined, and Mr. Leith's prose has exactly caught the elusive character of thoughts during sickness and convalescence—the reader is carried on as in a dream. Anyone who knows his classics will revel in the happy allusions to, and quotations from, the great writers of Greece and Rome, of which there are many—e.g., we have noted Homer, Thucydides, Æschylus, Aristophanes, Theocritus, Lucretius, Virgil, Juvenal, and the practically unknown Sulpitia, whom Mr. Leith is good enough to mention by name, fearing, we presume, and rightly so, that otherwise but few of his readers would know to whom he was referring. The medical profession owes a debt of gratitude to Mr. Leith for this "epaenetic"—to use one of his own words—of our calling.

THE BRITISH SYSTEM OF PHYSICAL EDUCATION.

By BEATRICE E. BEAR, M.B.A.P.T., Co-Principal of the Queen Alexandra's House Physical Training College. London: G. Bell and Sons, Ltd. 1920. Illustrated. Pp. 128. 8*s.* 6*d.* net.

THIS book is, we presume, intended to serve as a class-book in the college of which the author is co-principal. For students elsewhere it is inadequate; for teachers it contains little that will help them. In the preface the Swedish system is described as the grammar, and the British as the literature, of physical education. The text either pre-supposes a knowledge of the "grammar" or ignores its importance. Thus we read that games and sports are held to be necessary for all-round development, and yet no further reference is made to them. In the Swedish system, as we know it, dancing and games form an integral part of training, despite the fact that Sir James Crichton-Browne, in his introduction, stigmatises this system as "a drill." The author devotes much space to marching, but if this is supposed to replace the dancing of the Swedish system we frankly prefer the latter. To those unfamiliar with the technicalities of physical training and education a perusal of this book may be impeded by unfamiliarity with the abbreviations freely used. The method of illustration is good, though Figs. 17, 45, and 51 (apparently made from the same block) depict an almost impossible exaggeration of position.

SAPPHIRE WINGS.

By Surgeon-Major COOK, 1st C.B. Roy. Fus. London: J. Hewetson and Son. 1920. Pp. 68. 2*s.* 6*d.*

Surgeon-Major Cook has several volumes of verse to his credit, and we see no reason why this one should be the last, for his muse is not exacting. There is nothing very distinguished in thought or expression in the volume before us, but the author exhibits a technical facility which many bards might envy, and a definite point of view which many lack. We ourselves should have to be up very betimes to rhyme reason, puttees on, policeman, and squeeze on, with diocesan; and it is remarkable that this feat should have been accomplished, as we are assured it was, in hours snatched from slumber after a hard day's work. The two dozen poems in this collection touch on a variety of subjects from Heaven to the Royal Academy, and there is tough scientific stuff as well.

"Deaths by disease were, erstwhile, six to one
Of wounds that slay,
Disease now claims but one, to sixteen slain—
A better way;
Nine out of ten given back, if six hours run
Ere death has sway;
And those for whom Field Hospital is won—
Ninety and five see day!
Now, of each hundred wounded, at the Base,
Full ninety-eight
Reach home. . . . . ."

This is ingenious, even though pedantry may prefer the form in which the Registrar-General presents his statistics. The following line contains a heresy—

"Knew the canker that lay burning at the root."

The best cankers never burn; they gnaw.

THE GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION.

—o—

THURSDAY, JUNE 3RD.

AT a meeting of the Council on this date Sir JAMES HODSDON, the Chairman of the Committee, submitted the

Report of Dental Education and Examination Committee,

which set out the returns of the professional examinations in 1919 and of exemptions granted by the dental authorities.

The PRESIDENT remarked that the tendency was increasing throughout all the Dominions to restrict the practice of dentistry to duly registered people; hence the mother country was being surrounded by a ring of self-governing Dominions which in this matter were in advance of her.

The report was agreed to.

Teaching of the Preventive Aspects of Medicine: A Significant Report.

Dr. MACKAY (chairman of the Education Committee) presented a Further Report by the Committee,[1] which was made the occasion of an exhaustive discussion. The Report ran in substance as follows:—

The Committee first draw attention to a Memorandum by Sir George Newman, entitled "Some Notes on Medical Education in England"[2]; to "An Inquiry into the Medical Curriculum," published by the Edinburgh Pathological Club[3]; and to the resolutions (1916)[4] and recommendations (1909) which have been issued by the Council to teaching and qualifying bodies. After allusion to the fact that the term "Preventive Medicine" in the Circular Letter referred to the general education of the student in medicine, and not to special instruction in hygiene, it is pointed out that the Letter has had in view what may be called the pre-morbid state and the necessity devolving upon the practitioner of taking measure to eliminate influences affecting individuals professionally under his care which threaten to produce disease. The replies to the Letter received by the Committee indicate by their general tenor that present-day training does not concern itself sufficiently with the preparation of the student for the discharge of these important elements of the practitioner's duty.

The particular points raised concern primarily that portion of the teaching work which belongs to what is here called the clinical group of teachers, those who directly train the student for the practice of his profession; but as the earlier courses of study form together a graduated scheme of instruction designed to prepare the student to receive the actual training in his life-work, which he can only obtain at the hands of his clinical teachers, it is clear that the whole curriculum necessarily comes under review.

Since, under the particular aspect of "Preventive Medicine" to which attention has been called, the recognition of pre-morbid and early-morbid conditions is essential, an accurate knowledge of the limits of normality in structure, function, and reaction in the human body is specially called for. This involves the special consideration of the teaching in anatomy, physiology, and pharmacology, and, on the other side of the boundary line, of pathology also. ..... It is proposed to call the attention of the Council in the first place to certain general considerations which affect the question as a whole, and afterwards to deal very briefly with the particular aspect of the problem as it presents itself to each of the several departments. A full and open discussion will pave the way to ultimate solution. The ideal curriculum cannot yet be established: students begin too early, teachers are over-burdened, clinical instruction is often carried out under adverse conditions.

The particular aspect of medical training to which, under the name of "Preventive Medicine," the attention of the schools has been called represents the first stage of a coördinated system. The reply sent by the University of Oxford to the questionnaire may be quoted in this connexion: "It is accepted that, generally speaking, either from the clinical or from the pathological standpoint, disease is more easily recognised in its later stages. As the student has to be taught the easier problems first, it follows to a certain extent in *practical* instruction disease must be taught in the reverse order of its development."

The consideration of the length of the curriculum would naturally be taken up in ordinary circumstances at the close of the discussion, but it is to be noted that none of the bodies which have sent in replies have proposed that the teaching period should be extended, although many speak of an overloaded curriculum. It is impossible to avoid some overlapping in discussion and it will be found convenient to take, in the first place, the distribution of the work of training among the different classes of teachers and the allocation of each particular branch to its appropriate place in the curriculum. The clinical teachers, the sole instructors of the student in all that concerns the actual practice of the profession, are naturally deeply versed in the earlier sciences, but they practise a science of their own, and medicine is infinitely more than a mere combination of these. The principles of physiology, pharmacology, and pathology are united in one system working in an environment in which material, vital, and spiritual influences are blended, and having its own laws and its own evolutionary history. Until recently the clinical teachers undertook the whole work of medical training; but the vast increase of breadth and the multiplication of details in every department of medical study have compelled specialism. It lies with the staff in medicine, surgery, and midwifery, and in all the minor branches of these departments to deal with the *whole* training of the student. The ancillary subjects cannot be exalted by their teachers without impairing coördination of the whole, when either the student or the teacher undertakes work for which he is not qualified. Sir George Newman's Memorandum points out, talking of the clinical aspects of anatomy, that the principal anatomical lessons should be introduced by the clinical teachers "as an integral part of the clinical aspect," and in dealing with the teaching of obstetrics and gynæcology he takes a similar view.

The importance of the question of the proper coördination of studies has been specially emphasised in many of the replies. A full discussion of the subject is contained in the report from Guy's Hospital Medical School, and many interesting suggestions are proposed therein. The Edinburgh Pathological Club also deals exhaustively with the subject, and puts forward a detailed scheme embodying their proposals for the distribution of the several studies throughout the curriculum. One of their suggestions, to the effect that the student should begin his clinical instruction in his first year, will probably not prove acceptable to the majority of teachers. The work of the clinical instructors is already very severe, and the overcrowding of clinical classes with students wholly untrained, having no knowledge either of bodily structure or bodily function, would not tend to lessen it. The necessity for coördination of studies is convincingly stated by Sir George Newman: "There must be ..... reasoned effort to eliminate the unnecessary and the redundant, and to concentrate on the essential things ....." "We may well reduce the data of botany and chemistry and begin with the preliminary sciences earlier; we may strip the study of anatomy and physiology of useless memorising of unimportant detail; we may abolish a considerable amount of materia medica and some pharmaceutical work; we may diminish the number of systematic lectures in almost all directions; and we may bring tutorials and our examination system into subjection." The consideration of the Council is invited to the general principles on which coördination of studies should be based.

The ideal scientific method in training cannot be realised in entirety in medicine because of the circumstances in which the teachers must of necessity work. Subjects cannot be taught as progressive sciences in themselves when they are ancillary to something else. The vast increase in recent years of medical knowledge, the bringing to light of new facts, have augmented the difficulties of the teacher, and now there is grave danger that the scientific spirit and scientific methods of instruction may be forgotten, and that medical education may degenerate into an elaborate and laborious system of memorising. The danger is imminent; it seriously affects the future of medical research in this country. Some of the difficulties are unavoidable; others may be met. The more serious may be overcome if it be generally agreed that from the teachers in the earlier sciences (the term is used to include all except the clinical subjects) no more is to be expected than that they should impart to their students an intelligent and scientific appreciation of the subjects which they profess. Doubtless they should, but always in pursuit of their primary objects, make use, as far as possible, of material likely to be of subsequent clinical interest to the student, and employ such clinical knowledge as they possess in illustrating and emphasising the importance of particular branches of their work, but their real teaching should be confined to their own special spheres.

In a report made to the Council in 1890 the Education Committee, discussing the length of the curriculum and advocating its extension to five years, made the following statement concerning the methods of examination: "The Committee would further remark, in view of the potent influence of methods of examination in determining methods of education, that it would tend greatly to induce more attention to practical work were the practical part of the examination in all the subjects extended and less time occupied with the written examination." This piece of advice seems to have been lost sight of, perhaps because it did not go far enough. Preparation for the written examination compels the student to text-book work. Knowing that his success will largely depend on the completeness of his answer, he expends much time and effort in memorising many details, of the relative importance of which he cannot judge, since his text-book seeks to give all without discrimination. The text-book is a danger to the student; it tends to destroy his own initiative and judgment. The preparation for oral and practical examinations demands the seeing and handling the subject and discussion with teachers; and so promotes the student's understanding and corrects his reading. The Council might well re-open the discussion of 1890 and consider the methods of examination.

The aims of the present Inquiry are primarily concerned with clinical work, and to extend and improve the opportunities for clinical study. These may be realised by an extension of the clinical period, adding to it at either end. The former plan would lengthen the curriculum, the latter would require the introduction of blocks to prevent the encroachment upon the clinical time. Clinical teachers have complained of these encroachments already. The precise question may therefore be stated—Can the teaching of the subjects preparatory to clinical study be made lighter and less exacting on the student and, at the same time, be better adapted to his future needs? Otherwise there must be extension of the time-period of the whole curriculum, the addition to be exclusively devoted to clinical work, but consideration must be given to the needs and conditions of each of the earlier subjects and an extensive readjustment made of teaching methods and arrangements. If some

[1] An Interim Report by the Education Committee on this subject was presented to the Council on Nov. 26th, 1919. It is printed in extenso in the minutes of the Council for 1919 (pp. 347-393). The Interim Report contains in an appendix a number of replies to the Circular Letter on the subject addressed by the Council to the teaching bodies. Additional replies received since the November Session of the Council are embodied in the appendix to the present Report. The letter was addressed to 38 bodies in all; replies have now been received from 30 of these.

[2] THE LANCET, August 3rd, 1918, p. 147.

[3] THE LANCET, Jan. 26th, 1918, p. 147.

[4] THE LANCET, Dec. 9th, 1916, p. 988.

measure of agreement should be reached on the general questions raised in the Report, the necessary investigation may be to some extent simplified. Some detailed suggestions are put forward for discussion.

Preliminary Education in General Knowledge.—Much advantage would be gained were the minimum age at entrance raised to 18. The last two years of school life might be largely devoted to chemistry and physics, and a pass-certificate in these subjects of the higher standard might be accepted for some portion of the work in inorganic chemistry and general physics in the schools of medicine. This would naturally lessen the pressure in the first year of the curriculum and increase the time available for the study of anatomy and physiology. If the change be made it must be universally applicable. The teaching in all the earlier subjects is carried on and amplified by the teachers in all the later subjects, each employing some portion of the organised knowledge which the student has gained and amplifying it for his own special ends. The curriculum cannot be divided into separate compartments. All the teachers, for instance, who follow the biologist are adding to the students' knowledge of biology something which the biologist cannot himself give them. It is the duty of the later teachers to carry on the teaching of all the sciences which precede their own sciences in the curriculum. The courses in the preliminary sciences must of necessity be general in their nature. At the same time, wherever possible, the earlier teacher in selecting his material should make use of all which, without detriment to his special purpose, is likely to arouse the interest of the student in the practical applications of the subject throughout his later work.

Biology.—Applied biology should be taught later to the student in the classes of anatomy, physiology, pathology, bacteriology, public health, and medicine. There is not much divergence of opinion among the replies as regards the teaching of this subject and the preliminary sciences generally.

Chemistry.—Inorganic chemistry, if taught in schools for two years to pupils above 16 years of age and certified by a pass-certificate of the higher standard, as has been suggested above, might with advantage replace the elementary course usually given in the schools of medicine. Organic chemistry, on the other hand, should probably, for the present at least, be retained in the curriculum; its study demands a closer application than the average school-boy is accustomed to give. The subject is taught in applied form in physiology, pathology, pharmacology, medicine, and public health.

Physics.—The subject should include the elementary mechanics of solids and fluids, and the rudiments of heat, sound, light, and electricity. There is usually allotted to it in the curriculum a period of three months' study (lectures and practical). The subject forms an essential basis for every branch of medical study. The teacher naturally cannot specialise in physical therapeutics, radiology, and electrical treatment as is suggested in the Circular Letter; he has barely time to deal adequately with the most general principles of his science. If physics were undertaken by the schools under conditions similar to those which have been mentioned in connexion with inorganic chemistry, there would not only be some slight saving in time, but a vast improvement in teaching.

Anatomy.—The subjects of anatomy and physiology of necessity overlap, but while recognising this, it is of advantage to treat them separately in the present inquiry, as their teaching methods differ widely in practice. No subject in the whole curriculum is so overburdened with detail as is anatomy, and its study and examinations constitute on this account a danger to the student. The reasons for this are sufficiently obvious. The teaching of embryology in the medical schools is of comparatively recent date; even in the near past teachers of anatomy have frequently been surgeons, and have naturally taught the subject, to a large extent, from the point of view of its clinical applications; from the observance of this custom medical teaching has not yet been entirely emancipated; the subject itself demands the memorising of many details not yet explainable under scientific principles. Anatomy should be taught as a science, an end in itself, not as a clinical study but as a preparation for clinical study. It should be based as far as possible on morphology and embryology, with constant reference to physiology, and should be illustrated as freely as possible by demonstrations from the field of pathology which immediately succeeds to it in the curriculum. As the teacher is called upon to give the student comprehension of the development and structure of every organ of the body, osteology must be dealt with in detail, as also arthrology, myology, the central nervous system, the lymphatic system, and the general distribution of peripheral vessels and nerves. Without continuous teaching in embryology few of the complications of his subject can be understood by the student. He should be taught the anatomy of the living body, embracing in this the normal bodily proportions, surface markings, the positions of the viscera, and the actions of the joints and muscles. This is the true interpretation of the term applied anatomy, which is used in two senses in the replies to the Circular Letter. On the other hand, the anatomist should avoid in his teaching all that would naturally fall into a course of surgical anatomy given by a surgeon in the clinical years of study, during the period when the student is concerned with clinical problems and in direct contact with clinical cases. The student may be spared in the ordinary anatomy class very much of the vast accumulation of minute details concerning the inter-relation and the fine distribution of vessels and nerves with which his text-books are loaded. The work of the dissecting-room, continued through a period of five terms, is intended to familiarise the student with bodily structure, to let him see and handle, but not to fit him for examination in minute details. It is a preparation for, but not a study of, surgical anatomy.

Physiology.—The teaching usually extends through three terms, and is carried out in a lecture course and in three practical classes dealing respectively with histology, animal experimental physiology, and chemical physiology. In view of the importance of the subject it cannot be said that too much time is given to physiology, or that anything is likely to be gained by reducing the period of study; but, on the other hand, a modification and a rearrangement of the work might indirectly be of assistance to the clinical teachers by lightening their labours, and would, at the same time, be likely to increase the practical value of the course to the student.

As has been suggested in discussing the teaching of anatomy, a practical course dealing with the employment of physiological methods in the study of the normal human being might with much advantage be instituted. This proposal is put forward and strongly pressed by Sir George Newman, who gives by way of example a specimen syllabus of the suggested course. It deals with the examination of the heart in action, blood pressure, and blood counting; with respiration and the determination of vital capacity; with the use of the clinical thermometer; with electric stimulation of muscles, muscle fatigue, and muscle reflexes; with the practical examination of sensory impressions from skin, muscles, labyrinth, and eye; and with the testing of the functional integrity of the various organs of the body. This may be named a course in applied physiology. To make room for the effective carrying out of a syllabus based on these or similar lines a considerable portion of the usual course in experimental animal physiology might advantageously be dispensed with. Oxford University has established, under the name of clinical physiology, a special course dealing with the physiology of man, in respect to the cerebrum, to dietary, to particular muscular acts, to some features of the human life-cycle, &c. Where this is not already done it might be well to follow the Oxford example. A number of replies to the Circular Letter approved the institution of courses of applied anatomy and physiology, as instituted at Middlesex Hospital.

Materia Medica, Pharmacy, Pharmacology, Therapeutics.—Sir George Newman considers that the two former might be largely dispensed with, that pharmacology should be taught in the laboratory as continuation of physiology, and might be limited to the study of the action of some 40 to 50 drugs, of the most important of which he gives a list. The instructor in therapeutics should be a clinical teacher well skilled in pharmacology, and the study of the subject should be carried on in the wards and out-patient departments. The teaching should deal not only with the effect of drugs, carefully watched from day to day, but with the influences of other remedial agencies, as dietetics, rest, hygiene, hydrotherapy, electric treatment, Finsen light, X rays, radiotherapy, remedial gymnastics, thermotherapy, climatology, open air, massage, and psychotherapy. The teacher should also pay special attention to the actions of vaccines, antitoxin serums, thyroid extract, and salvarsan.

Pathology and Bacteriology.—Many of the bodies have taken no notice of these subjects, but almost all which have dealt with them in their replies are in agreement that bacteriology is sufficiently taught. In pathology some admit deficiencies in the teaching, particularly as regards ætiology and the recognition for preventive purposes of the earliest indications of disease. Others in this connexion state that instruction in clinical pathology is given later in the curriculum. The exceeding difficulties of procuring autopsies in Ireland is noted from University College, Cork. Sir George Newman, pointing out that pathology, broadly speaking, is "Medicine, the Study of Disease," advocates the establishment of pathological institutes, properly staffed, in connexion with the teaching hospitals, and a remarkable memorandum from Guy's Hospital covers this and similar ground. The course outlined by Sir George Newman is virtually "clinical pathology," and deals with a most important aspect of the subject which has hitherto been largely neglected; it should be continued to the end of the curriculum, and should be examined on in the final or qualifying examination along with medicine, surgery, and midwifery. There should be, however, a precedent course on the general principles of pathology, which, however, might be materially reduced in length if clinical teaching were systematised. Comparative pathology might also be dealt with in the laboratory of the medical school or university.

Normal Psychology.—Fourteen bodies have given attention to the interrogation concerning this subject, and the majority hold that some instruction should be given by the lecturer in mental diseases as a prelude to his course. Few regard the subject as falling within the domain of physiology.

Public Health, Hygiene, Preventive Medicine.—On this subject, variously designated among the teaching bodies under the titles given above, no one can speak with greater authority than Sir George Newman, and the attention of all the schools is called to the chapter devoted to it in his Memorandum. After discussing the general aspects of the teaching, he gives in detail, in an addendum, a statement suggesting the scope of the teaching required by the ordinary student: "The following statement is intended to be suggestive of the nature of the preventive medicine which should form an integral part of the warp and woof of the medical curriculum. Certain sections should no doubt be incorporated in the course of hygiene for medical students; other sections should be included in the appropriate subjects of the curriculum, such as physiology, pathology, medicine, surgery, or obstetrics, which in greater or less degree is the case at the present time in some schools. The proposal is not to add a new subject, nor to lengthen the student's curriculum as a whole, nor even to inflate the subject of 'hygiene'; the essential point is that every medical student, before or after graduation, shall receive proper instruction in these matters (some of which are at present almost wholly ignored), and become imbued with the purpose, practice, and spirit of preventive medicine. He must understand the preventive aspect of medicine, surgery, and obstetrics. The statement, which has been advisedly kept simple and elementary, is designed for the medical student, and not for the student reading for a diploma in public health. A consideration of the daily needs of the medical practitioner in ordinary practice in England or Wales will, it is submitted, be found to justify the contents of the statement, the subjects of which should be illustrated and taught, as far as practicable, by means of demonstration or example."

The statement contains 24 sections, and specifies in detail the contents of each. The subdivisions may be omitted here, and the headings alone quoted: (1) meaning and scope of preventive medicine; (2) administrative machinery of preventive medicine; (3) maternity; (4) medical care of infancy; (5) the young child; (6) school hygiene; (7) personal hygiene of adolescent and adult; (8) the dwelling house; (9) the housing question; (10) food-supply; (11) milk-supply; (12) water-supply and the public health; (13) alcohol and alcoholism; (14) infection and infectious diseases;

(15) principles of epidemiology; (16) diseases of animals communicable to man; (17) the prevention of infective disease; (18) vaccination and antitoxin inoculation; (19) prevention of other forms of disease; (20) vital statistics; (21) health insurance; (22) nuisances and dangerous trades; (23) industrial hygiene; (24) medico-sociological questions in relation to medical practice.

The course will naturally fall into the final year of study. At first sight it may appear to be unduly extensive, but a large proportion of its contents will already, in a properly coördinated curriculum, have engaged the attention of the student in other classes. Thus it will serve a double purpose: (1) the instruction of the student in the methods and results of recent work in public health; and (2) the focussing of his knowledge, gained in many departments of study, upon the preventive aspects of medicine.

Surgery, Medicine, and Midwifery.—It is proposed to postpone the consideration of the teaching arrangements in the great clinical subjects. In discussion much will depend on the reply to the question whether or not the teaching of the earlier sciences can be so modified as to give the clinical teachers a more adequate opportunity than they possess at present of satisfactorily overtaking their subjects. In the medical curriculum the two groups of necessity react on one another. Further, it is not proposed at the present stage to issue any special recommendations. Before any change can actually be made in the curriculum general agreement is essential, and to the possibility of that attainment the expressed opinion of the Council is probably the best guide. In view of the important issues involved, it is hoped that the various points raised in the Report will be fully discussed in the course of the session.

The Report has been prepared by the Chairman after an analysis of the replies received from the teaching bodies. The Committee is of opinion that the questions which have been raised involve the revision of the whole curriculum in medicine, and suggests that the Council should remit to it for further report the consideration of the methods under which the necessary revision may best be carried out.

Dr. Mackay, in presenting the Report, outlined the history of the movement towards an improved curriculum, remarking that the diagnosis of morbid conditions was not even to-day receiving the instruction and the attention it should. The matter needed long and careful consideration, but the present was an opportune time to make a beginning. The curriculum had been divided into two groups of subjects, the chief being the clinical, and, secondly, all the other subjects which could be regarded as ancillary to them. The real teacher of medicine was the clinical teacher, all the others having as their function the preparing of the student's mind for the reception of what would constitute his life's work. With regard to the preliminary education of the student, the Report suggested that the Council should consider whether there would be an advantage in not allowing a student to begin his medical course until his eighteenth year, thus allowing him to receive the previous training which would fit him to receive the instruction for his chosen work. In all the other great countries the commencing age was higher than here. If the age were raised the student might be called upon to pass a more extensive preliminary, and possibly physics and inorganic chemistry might be included in his school work, thereby greatly relieving the pressure in his first medical year. An important point was the proper coördination of the different subjects in the curriculum, not only to avoid overlapping, but with the view to seeing that the student received instruction in any one subject at the time he was interested in it and was able to benefit most from it. For instance, many parts of clinical surgery could be taught with anatomy, for in the absence of a clinical interest and application, anatomy was apt to be a mere matter of memorising. It could advantageously be largely taught on the living body. In physiology too much attention was paid to minute experimental details; there should be rather a concentration on the normal physiology, including percussion, heart sounds, and estimation of blood pressure. Pathology, he held, might be divided into general and clinical. It had been suggested that the ground covered in pharmacology could be much reduced by paying particular attention to 40 or 50 of the more important drugs, thereby reducing much of the memory work. Sir George Newman, in his Memorandum proposed that pharmacology should be taught in the laboratory as a continuation of physiology, together with other subjects such as hygiene, dietetics, hydrotherapy, and electrical treatment. Dr. Mackay asked the Council to discuss the report fully.

Dr. MCVAIL seconded.

Dr. NORMAN WALKER spoke of the importance of the report, and on his suggestion the Council resolved itself into Committee to allow of an unfettered discussion.

Sir NORMAN MOORE reminded his colleagues that their object was to lay down the parts of knowledge which were necessary to be acquired before men were considered fit to practise their profession. That predominant function had been somewhat lost sight of in some of the discussions at Council meetings. All sorts of reasons had been advanced for either adding subjects to the curriculum or taking subjects from it, or modifying the degree of knowledge required. It must never be forgotten that the element of time was an important one; otherwise a man might go on until he was 35, and still have some subjects left to master. In present conditions in the country and in practice, men should not be required to study more than five years in order to qualify. How much time ought to be given to medicine, surgery, and midwifery? With regard to preliminary education, he laid stress on whether the youth had received such education as to make him wish to enter a university. With reference to chemistry, physics, and biology, he would like to hear that question discussed first from the point of view of what the mind could retain. Men in practice seemed usually to have retained but little of what they had been taught about them. Formerly, biology as a subject was not required at all. Anatomy and physiology were most practical subjects, and they should be taught with a definite relationship to professional needs during the whole time. He would like to see anatomy so taught as to use up as little as possible of the five years, while at the same time having a very definite effect on the mind of the student. Moreover, the scarcity of bodies made it necessary to have a change of method in pursuing this study. There was a tendency to allot to physiology a bigger place in the curriculum than it deserved, and he agreed that leading principles should be concentrated upon. He implored the Council to keep always in mind the producing of a thoroughly trained medical man.

Sir JAMES HODSDON agreed that the Council had to legislate for the minimum, and that any recommendations made were, at this stage, no more than suggestions. It would be conceded that men were not being turned out as practitioners in accordance with modern notions, especially on the subject of preventive medicine. The chief reason was the tendency to encroach on the fifth year of study, and to teach earlier subjects in more or less "water-tight" compartments, as if the students were going to be specialists in each one. His view was that there should be fewer lectures and less didactic teaching, and the giving of more tutorial and practical instruction. The student was burdened with examinations throughout the whole of his course. He thought the records as to the way the student had been doing his work should be available at the examination; it would tell the examiner much more than he could ascertain by ten minutes of questioning. A point which members of the Council had to ask themselves was whether the earlier subjects could be somewhat curtailed, so as to give more time to those embraced in the Finals, or whether there should be a rearrangement of subjects to secure better coördination.

Sir JOHN MOORE said he had felt in recent years that the five-year curriculum had been essentially a retrograde step so far as the attainment of a knowledge of medicine was concerned. The prime matter in the mind of the student was as to how he could pass his examinations. But clinical work could not be learned from the lips of a teacher. In his experience there had recently been a marked falling off in actual direct clinical work in the wards, and the following up of cases to see the results of treatment. To have a multiplicity of examinations, in his view, was wrong. The place for the ancillary subjects was the school, and he agreed with those who would postpone the commencement of medical study to at least the seventeenth year.

Sir GEORGE NEWMAN reviewed the whole subject. He warmly agreed with Sir Norman Moore that in considering the medical curriculum members of the Council had to consider the product, which should be a clinical product. The question was, What kind of medical man did the times require for the immediate future? The

new demands which the State had made on the medical man must be faced. Public health was the communal aspect of preventive medicine. The State was now making demands on two-thirds or three-fourths of the profession, as against the former demand of one-fourth. The demands were, in the main, clinical. No greater mistake could be made than to contend that State medicine was non-clinical; he would view with great concern any attempt to divorce State medical work from clinical work. He wished to put in a plea for a recognition of the importance of the preliminary science subjects; there should be the desire to strengthen rather than weaken them. The practitioner needed to be more biological, more chemical, rather than less; more, rather than less, ready to apply to his work the great principles of physics and chemistry. The time was now more than ripe to consider a broad and generous reform. He thought the curriculum should be lightened at both ends. At present the student was not being given time to think or digest knowledge—time for real study; it was a rush from the beginning of the first year to the end of the fifth. True culture or true learning could never be acquired on the priniciple of a general scrimmage. His second suggestion was that there should be an attempt to coördinate the preliminary scientific and intermediate subjects with each other and with the clinical, and to make them much more applied. Thirdly, the Council should consider a reorganisation of clinical teaching, so that the student could have of the best, not the residuum; and that the teacher should not give of his best to his practice, but to his university. Fourthly, he wanted to see provision for the student to have an ampler education in venereal disease, tuberculosis, maternity and infant welfare, orthopædics, and mental diseases—he advisedly omitted mention of specialties. Many men were being turned out of the medical schools unequipped in the subjects he had named. In the combat with venereal disease, for instance, no solution would be found until the mass of practitioners were equipped to deal with that disease; its roots were too deep, and the provision of clinics was not a solution. Much the same could be said about the others. His fifth point was that there should be some kind of post-graduate equipment and education, both to assist towards specialisation and to continue the ordinary medical education of the practitioner. His last word in debate was that there should be reformation of the examination system; it should be made to follow the training, not to decide it and lead it. It should include the process of preparing the student, should be made not a hazard, but a certainty. This would alter for the better the whole of the student's outlook; it would bring the student to his books, to his specimens, to his cases and his bedside work in an entirely new spirit.

Sir GILBERT BARLING said that at Birmingham they had arranged that in all the categories except medicine the student should carry his markings with him, the exception being due to the fact that in medicine an extern examiner coöperated, and he could know nothing of the student's previous work. He mentioned the reference in the Report which implied that the future general practitioner is possibly not receiving such a training as will qualify him to diagnose and treat disease in its very earliest manifestations; such a passage might have been taken from contributions which one had become accustomed to in the *Times* lately. The tendency was to throw on the general practitioner the most difficult part of the practice of medicine. Would the education which could be given to the student enable him to recognise with certainty the earliest beginnings of disease? That needed the best possible training which medicine and surgery could provide. He thought weeks should be devoted to the anatomy of the brain and spinal cord. Nothing could be cut out of the clinical curriculum as it now existed, but it was sure to be added to. This was not the time to ask people to devote great additional expense to training; but if the number of candidates for the profession were to greatly increase, then the curriculum could be boldly extended.

Dr. NORMAN WALKER moved the adjournment of the debate.

FRIDAY, JUNE 4TH.

Report of the Pharmacopœia Committee.

Sir NORMAN MOORE submitted this report and pointed out its main provisions, saying that the sales of the Pharmacopœia to the end of May, 1920, had been 1582 in seven months, or 36,852 since the date of publication. The Committee had agreed to approach the Government with the suggestion that a public institution should be established for the official standardisation of such remedies as serums and vaccines. The Minister of Health had now taken the matter up and appointed a special committee to advise him on the measures which should be taken. Sir Norman Moore made grateful reference to the help which Sir Nestor Tirard had rendered to the Committee over a long period.

Sir JOHN MOORE seconded the resolution for the adoption of the report and it was carried, as was also a proposition to appoint Sir Nestor Tirard as secretary of the Committee at a due remuneration.

Resumed Debate on the Report of the Education Committee.

Dr. NORMAN WALKER, in resuming the debate, said he had recently returned from the United States, where there was no General Medical Council, and where every university was free to do what it liked in the matter of medical education, always, however, keeping in view the passing of the examination, failure in which was held to be to the discredit of the university. They were also under the voluntary influence of an Association under which schools were classified. The success of a school depended on its remaining in category A. One effect of this classification was, that whereas formerly there were 439 schools, the number was now 89, of which 72 were classed A. The standard in these latter was high, and the professors in them must be full-time professors. The association between the hospitals and the universities was, in most places, very close. To qualify for Class A schools, students must have had four years of high school education and two years collegiate education—some schools required three years. All Class A schools included chemistry, physics, biology, and a foreign language. The medical curriculum extended over four years, but the student was not admitted to the examination of the National Board until he had served one year as an intern in either a hospital or a laboratory. The supply of bodies there was so good as to allow half a body for each student to do his anatomy on. Much stress was laid there on embryology, and in anatomy great attention was paid to neurology, and this was carried well into the third year. The same was true of bacteriology and of biochemistry. Most of the schools had a whole-time professor of biochemistry. The laboratories were beautifully equipped, and money seemed to have been readily forthcoming for them. He was much interested in one of the classes on operative surgery. The class was divided into sections of 80 students, and there was a rotation of duties as surgeon, assistant surgeon, anæsthetist, and family doctor. Should the surgery—on the cadaver—be voted unsuccessful, an appointed coroner held an inquest. And in that land of liberty the students were more orderly than here, more definitely responsive to authority. Great care was exerted in admitting students, hence the best material was obtained for securing good results. There were physicians and surgeons on the "whole-time" staff, but they had consulting rooms in the hospital and received their private patients there, making a good income thereby. These professors had all the resources of the hospital at their disposal. Dr. Walker said he was a great believer in the value of good lectures, though there were subjects on which the number of lectures was overdone. He found in the States an amount of coöperation between the university and the city which was most interesting. The city of Cincinnati supported its university, and was responsible for the salaries of the university medical faculty and for the whole of the medical treatment of the city. All the special hospitals were in association with the teaching hospital, and the students had access

to all of them. Dr. Walker thought chemistry, physics, and biology should be taken before the student commenced his study of medicine. There were now too many medical students, and there would soon be far too many doctors, and the taking of those three subjects quite early would enable men to find out soon if they were not cut out for a medical career. He would like the medical curriculum to be of four and a half years' duration—he would even be content with four, because there was a way of lengthening the curriculum by making the terms longer; 32 weeks for study out of the 52 was not a large proportion. The session at Minnesota University went on all the year round, and the holidays accounted for only seven weeks. This would mean more teachers, because the same teachers could not be expected to continue during the whole year. Certainly there should be more paid professors' assistants. Also the present limitation of hours for teaching in hospital should be removed. He regarded the "intern year" as a splendid thing. We had many hospitals where no teaching was done, yet nothing so raised the status of a hospital as to make it a teaching institution. In America medical societies arranged for professors in specialties to attend the town at definite dates, when practitioners brought their cases for consultation and instruction. This idea was welcomed and was growing. He concluded by expressing a warm eulogium on the Mayo Clinic.

Dr. RUSSELL WELLS spoke of his 17 years on the Senate of London University, and said the time had fully arrived for taking stock of the position in regard to medical education, and for ascertaining wherein their deficiencies lay, at the same time preserving our undoubted excellencies. The literary standard required in the preliminary examination for medicine—modified second class College of Preceptors—was very low, so low as to constitute a disgrace; the standard accepted was refused by the solicitors, accountants, and even auctioneers and estate agents, yet it was the portal of a profession which demanded high intellectual attainment. He thought students might be encouraged to enter hospital at the age of 18. It was the first year which determined the attitude of the student towards his work. He strongly urged that the various subjects should be taught from the standpoint of their application to medicine. And it was not desirable to make one series of lectures do for two sets of students. Chemistry should run through the whole course, and he would like to see some form of biological chemistry in the final examination. The same applied to anatomy and physiology.

Dr. MCVAIL expressed the hope that Dr. Norman Walker would publish for the benefit of the profession what he had learned as to American methods. When he, the speaker, first moved in this matter it was to ascertain whether the practitioners of the future were being taught to fully realise the opportunities lying before them of dealing with the early stages of disease. The question of lengthening or otherwise modifying the curriculum could very well be considered in a practical way by a committee of this Council, for their body embraced specialist teachers in the different branches, and they could be given power to coöpt outside help. The subject was the most important which had come before the Council for a quarter of a century.

Sir ARTHUR CHANCE considered that the preliminary education was very important; if a man was well educated he had already advanced one-fourth of the way towards being a practitioner. Examination would not make him worthy, any more than measuring a man would make him taller. The teacher had so far not received much attention in this discussion. He did not know a professor in Ireland who received half as much as he could make by private practice. It must be remembered that the five years' course was the minimum requirement, but the average time taken to qualify was: in England, 6½ years; in Scotland, 5 years 8 months; in Ireland, 5 years 11 months. He considered the first need was for a weeding out of the curriculum, to take out the things least useful and valuable, and concentrate on real essentials. Preliminary science should be taken before commencing medical subjects, but there was a danger of that science being taught in a perfunctory manner. It need not be very deep, but, so far as it went, it must be sound.

Dr. LITTLEJOHN said this Council was largely responsible for the present position of medical teaching in the country, because whereas in 1869 it gave a lead as to what ought to be done, it had not since moved with the times, but had rather kept back medical teaching as desired by those who would have made progress; it had shown no elasticity. It would be an advantage to dispense with the water-tight compartments. For instance, anatomy should not necessarily be finished by a certain time. He objected to waiting two or three years for the change; in Edinburgh they were waiting for a lead from the Council so that they could establish certain professorships, such as one in biochemistry. Nor would he slavishly sit at the feet of America in this matter, as at one time we did at the feet of Germany; he contended that the merit was not all on one side. He had long advocated an intern year for students, the value of which he pleaded.

Dr. MACDONALD spoke from the standpoint of the general practitioner, and declared that a number of men were sent out as general practitioners who were not capable of fulfilling the duty required of them, and that failure he attributed to their training not having been practical enough; they were not taught the interdependence of the various subjects and their general applicability to medicine. There were certainly not enough professors and teachers; their numbers ought to be quadrupled.

Dr. DEAN said all felt that the present curriculum was badly overcrowded; something must be omitted and other means of shortening carried out if any attention at all was to be given to new subjects. He hoped any future questionaires to the teaching schools would raise the point whether any course could be omitted altogether. At present a disproportionate amount of time was spent in the lecture-room, and there was a good deal of overlapping. With regard to pharmacology and therapeutics, Sir George Newman considered that teachers should be skilled in and be able to teach the values of dietetics, rest, hygiene, hydrotherapy, electric treatment, Finsen light, X rays, radiotherapy, remedial gymnastics, thermotherapy, climatology, open air, massage, and psychotherapy, as well as giving special attention to the actions of vaccines, antitoxin serums, thyroid extract, and salvarsan. It required excessively able teachers to deal with all these. If it was intended that these subjects should be dealt with in one course, the arrangement was an unnatural one. In every medical school he would like to see a committee of coördination, at which the various teachers would meet and learn each other's scope. In chemistry the medical student should be taught in a separate class; not medical chemistry, but chemistry for medical students. If there was to be any curtailment, he asked that it should not be at the expense of chemistry and physics; it could be done at the expense of zoology and botany. If men did not preserve their knowledge of physiology in later life, that seemed to show that their teaching had been too theoretical. With regard to the final subjects, there was room for much more collaboration and coöperation between the teachers in pathology, medicine, surgery, and gynæcology; and he thought more attention ought to be given to morbid physiology.

Professor THOMSON asked the Council to keep carefully in mind that it was the minimum they had to settle.

Dr. CATON thought there were signs that more men would try to enter the profession than there was room for. The Council should ensure that every portal of entry to the profession should be of sufficient type, so that all who passed through it should have the capacity to take due advantage of the subsequent training. He lamented the almost entire disappearance of classical studies in many cases. Greek and Latin were of great importance in developing mind and character, even if only pursued moderately. In the teaching of chemistry, physics, biology, and botany, those subjects were now so extensive that the teaching of them to the medical

student should be directed always to his life-work. He hoped the preliminary examination would be so framed, and that cramming would avail less than ever.

Sir JAMES HODSDON expressed his appreciation of the admirable Report. He discussed the two forms of anatomical nomenclature being used, and urged that there should be a uniform nomenclature on the subject for all English-speaking peoples. There was a strong feeling in many quarters that the old system should not be departed from.

Dr. DIXON said he held very strong views about the nomenclature used in anatomy, but so strongly did he feel the need for uniformity that he would be willing to adopt terms he did not like in order to secure it. He hoped the final report on the matter now under discussion would be in such a form that it could not be thought to hinder the universities from making suggestions, because the conditions in different places varied enormously. In regard to anatomy, there was need to stimulate the interest of the student in every possible way; therefore the Council should not insist on that subject being taught as a science in itself.

Mr. E. B. TURNER said the student must be taught to think for himself; the knowledge which a man got for himself was the knowledge which would abide with him. He had a great belief in the value of a classical education. Unless the general practitioner received training in preventive medicine he would fail in the never-ending fight againt disease. Patients suffering in the incipient stages of disease always went to the general practitioner first, and it was he who went into patients' homes and knew their conditions and surroundings.

Professor T. W. GRIFFITH agreed that the study of chemistry, physics, and biology should be transferred to the school, but there the teaching should be done by those who were fully competent for the work. The lectures should be very valuable, and they should contain matter which was not to be found in the ordinary text-book; he had a good deal of contempt for mere text-book dissertations. He would like to see the number of lectures on medicine reduced and their quality raised; the lecturer should know months in advance what was expected of him, so that he could give careful preparation. Much had been said about preventing overlapping, but there might be overlapping of a good kind, and the teacher should not mind kicking over the traces a little. The lectures on anatomy and physiology should be illuminated by references to practical points.

Professor LEATHES said that after a long discussion at Sheffield the teachers of anatomy and physiology had offered to shorten the amount of time they had required at the beginning of the course, and the net result of the suggestions was that the student would have three years to devote to clinical work. During the third and fourth years there would be a certain amount of laboratory instruction. Their proposals involved the breaking down of the rigid boundary wall between anatomy, physiology, chemistry, and physics, and they had instituted a chair of pharmacology, the occupant of which would be whole-time, except in so far as he had duties in the hospital.

Sir JENNER VERRALL said the Council must beware of aiming at a standard which the public would not be prepared to accept; and, on the other hand, it must always be remembered that the Council had to legislate for a progressive science. The men turned out for practice should have a clear recognition of the limitations of their own knowledge, so that they should not essay to deal with what was beyond their competency.

Dr. ADAMS expressed his warm support of Sir George Newman's contention that the teachers should give the student marks for his work throughout his career; that in itself would help to a better appreciation of the candidate's capacity, and would largely obviate the nervousness from which so many suffered.

The PRESIDENT read to the Council the only document which it had to guide it on this matter; and this stated "that the period of study shall be a period of bona fide study of not less than five years," and it proceeded to enumerate the subjects. There was nothing of a "cast-iron" nature in that regulation. It had stood as an instruction since 1893.

He then reported from Committee to the whole Council, and, on the proposition of Dr. MACKAY, the following recommendation was submitted:—

"The Committee begs to submit to the Council the foregoing report on 'the teaching of the preventive aspects of medicine,' which has been prepared by the chairman after an analysis of the replies received from the teaching bodies. The Committee is of opinion that the questions which have been raised involve the revision of the whole curriculum in medicine, and suggest that the Council should remit to it for further report the consideration of the methods under which the necessary revision may best be carried out."

Sir NORMAN MOORE seconded, and it was agreed to, and in addition that the Committee coöpt such members of the Council as it was felt could render it service.

It was further agreed that copies of the report be sent to the various schools, and such additional copies as might be asked for up to ten.

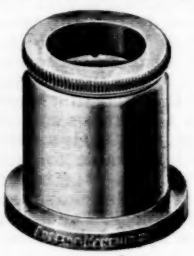
Colonel King was reappointed Registrar, and the President was authorised to deal with the work of the Council until the next session.

New Inventions.

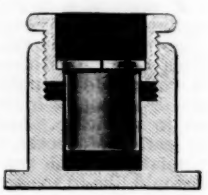
MECHANICAL CELL FOR MICROSCOPING CEREBRO-SPINAL FLUIDS.

THIS device makes possible the scrutiny of every cell and bacillus contained in a column of cerebro-spinal fluid 1 cm. in depth.

A cover-glass (not too fragile) is placed at the bottom of the cell (see diagram), which is then filled to the brim with fresh cerebro-spinal fluid. After an hour or two the cells and cocci will have sunk and will be lying evenly on the cover-glass. The milled head is then gently unscrewed; this causes the cell to rise, creating a vacuum beneath it. Provided the screw



SCALE ⅔



SECTION

is air-tight (a trace of vaseline on the thread ensures this), the supernatant fluid falls through the little channels provided into the well below the cell. A few more turns of the screw detaches the cell from its base, and if it is then placed in front of the fire its wall will drop, leaving the cover-glass on a little altar of brass, where it quickly dries. The ordinary routine is then followed. In staining no heat should be applied lest some cells be washed off.

In collecting the fluid the first blood-stained portion should be rejected. If the cerebro-spinal pressure exceeds 12 inches by my cerebro-spinal manometer (Messrs. Allen and Hanburys), meningitis or tumour or abscess is almost certainly present. Even if the cells are not counted, by the regular use of this apparatus an accurate quantitative impression of the number of cells is obtained.

The apparatus is specially useful in cases where tubercle bacilli are, or may be, present; for in tuberculous meningitis a spider-web clot often forms which entangles the tubercle bacilli, and an attempt to spread out this clot thinly inevitably ravels it up into a tangled mass which cannot be scrutinised microscopically. If the cerebro-spinal fluid looks turbid to the naked eye, it will need dilution before using the instrument.

Messrs. Allen and Hanburys supply the instrument not only as figured above, but also the earlier model shown at the Neurological Society, of which the design and action are more self-evident.

My thanks are due to Mr. F. M. C. Lewis for the excellent design.

FRANK C. EVE, B.A., M.D. Camb., F.R.C.P. Lond.

Hull.

THE LANCET.

LONDON: SATURDAY, JUNE 19, 1920.

Hospital Sunday, June 27th, 1920.

THE annual collection of the Metropolitan Hospital Sunday Fund will take place on Sunday, June 27th. It is not necessary to press the urgency of its appeal upon our readers, for they are fully aware of the conditions of narrow margins, of debt, and of mendicancy under which the voluntary hospitals are carrying on their work. The general public is equally alive to the position, the closure at the National Hospital for Paralysis and the threat of similar disaster at the London Hospital only putting accents upon a familiar text. Alas! the familiarity of the text is a source of weakness, not of strength, and we beg our readers not to assume that an evil because of its long life is necessarily eternal, and that the aggravation of an evil is no measure of its incurability. All know what the situation is in which the hospitals find themselves, and upon its causes there is no need to dwell. The ordinary householder and the members of his household are not likely to forget the risen and rising price of the necessaries of life, and the daily difficulty felt by many in trying to make both ends meet. We cannot ignore that difficulty, but we ask that it should not close any purses to the hospitals, but rather that it may stimulate sympathy. The anxiety which oppresses the hospitals weighs in like manner on those responsible for the care of the helpless sick and disabled, and it is to the sympathy of persons able to appreciate the situation that appeal can be made with greater assurance. And if the hospitals, through the stress of the times in which we live, lose perforce some of their old patrons, they should gain new ones, on whose ears the claims of generosity must fall loudly. There are newly rich as well as newly poor. The war, and the manufacturing and commercial enterprises which it brought into being, have left many to whom high prices do not make as much daily difference as to their neighbours. Those richer in 1920 than they were in 1914 are sometimes reproached with the fact. The needs of the voluntary hospitals offer a splendid opportunity to show that such obloquy is undeserved. The new rich can prove that in the struggle to become wealthier they have not forgotten the days when they were poorer, and that they are able to feel for those who in the humbler classes of the community can only find relief in the hospitals when struck down by serious physical disability. It has been said that old names have passed out of the lists of subscribers to hospitals through death and the circumstances produced by the war, and that the names of those who are now for the first time able to give freely in charity have not taken the place of these worthy predecessors. That is a serious charge against men and women whose freshly acquired wealth must almost inevitably place them in positions of influence in the community. They are called upon to set an example to others, and an example of generous charity has ever been one which has had wide influence for good.

On Hospital Sunday the appeal is for the worthiest object that any man's charity can have. Money is asked for to save from death and to restore to health those who without the aid of the hospitals would have to meet the grim alternative of dying and leaving their families to face the world unprotected. It is to be given without expectation of repayment, but it need not be forgotten that the generous giver may some day have his reward. In his hour of need, for himself or for his wife or child, he may require the help of the highest medical or surgical skill. It will be knowledge acquired in the wards of a hospital which will come to his aid; it will be science developed in the various departments of a hospital which he has helped to maintain that will enable his disease to be traced to its source and combated. The working classes will surely appreciate these facts, and we take this opportunity of recording their increasing support of the voluntary hospitals. But while no one denies that some sections of the working classes have profited more than most of their fellow subjects by the war, and that the general higher wages may allow of a better scale of living among these than they enjoyed before, do not let us forget that their margin, with increased prices, is small, and that the raised conditions are not only their right, but necessary to the improvement of public health, which, God knows, called loudly enough for it. We are a long way from eliminating poverty from our midst. We are a long way from possessing a working class able to pay for such aid as the hospitals can give, even though workers may be more prosperous than their forefathers were in the days when the hospitals were founded. The question of State control is not here under discussion; on this occasion we are speaking in behalf of that grand voluntary system, the supporting and supplementing of which is, we know from the best authority, the design of the Government and an integral feature of future legislation. The Report of the Consultative Council on Medical and Allied Services to the Ministry of Health indicates the direction of medical thought and intention, while the endorsement of the ideals contained in that document by the public press shows that the medical view and the popular view are one in intention. The voluntary hospitals are essential to our society, and their needs are public needs, as much to be met out of public generosity as out of taxes and rates.

The present situation of the voluntary hospitals of the metropolis is a terribly anxious one. Their financial position is serious, but not desperate. The war has crippled them as it has crippled many of those who used to help them freely, but they can point to their record in the war with pride and claim from all classes a double measure of support in difficulties greater than those which they have faced before. Hospital Sunday brings an opportunity to all. It is primarily the day on which those give who attend religious worship where collections are made, but it is not necessary to hold back from contributing because the collecting box is not rattled in the streets. Only let those who have the Metropolitan Hospital Sunday Fund brought to their notice in church or chapel not forget to press its claims upon others who are absent; and let those who have not given before initiate an annual custom with a substantial donation. Ten years ago we should have looked

upon a collection of £100,000 as a record on which the public could be congratulated. If double that amount were to be recorded for 1920 it would still be inadequate when the change of conditions is considered. It is not the "usual amount" that all are urged to give. Let them double or treble it. And above all let no one hang back because of recent melancholy cries that the voluntary system is doomed. It has received, as a matter of fact, a new lease of life by being found to be a necessary part, even a nucleus, of the immense developments that are projected.

The Diagnosis, Prognosis, and Treatment of Nephritis.

IT has been somewhat of a reproach to medicine that until recently the investigation of surgical diseases of the kidneys has been more scientific, more efficient, and more practical than that of the strictly medical diseases of these organs, with the result that surgical diagnosis and treatment have been more satisfactory and more successful. This has been largely due to the fact that tests for renal efficiency have been developed by surgical urologists for the express purpose of differentiating bilateral from unilateral disease, and for determining the affected side in the latter case and the efficiency of the remaining kidney. On the medical side much attention has been paid to the quantity and composition of the urine and the presence of albumin and casts, but it is only recently that the question of renal efficiency has been investigated in these cases. Much useful work has now been done on these lines which has not yet reached the text-books, and being still only to be found in monographs and papers in various medical journals, it remains outside the ordinary routine of medical procedure. We publish in this week's issue of THE LANCET an interesting and important paper by Dr. H. MACLEAN and Dr. A. E. RUSSELL, which we commend to the notice of our readers, since it not only gives a review of some reliable methods for investigation of the various aspects of the renal functions, but also contains practical and explicit details of their application and use. Incidentally it affords most valuable data in regard to diagnosis, prognosis, and treatment, which should be of the greatest help to the practitioner.

At the outset Dr. MACLEAN and Dr. RUSSELL point out that the specific functions of the kidneys known to physiology comprise three different processes—the elimination of the waste nitrogenous products of metabolism, the removal of acid products, and the maintenance of the necessary concentration of salts in the fluids and tissues of the body. It is a point of great interest to note that these functions are variously involved in the different forms of nephritis. In severe cases of chronic interstitial nephritis there is a definite retention of nitrogenous waste products in the blood, with a diminution of the acid-excreting function. On the other hand, in parenchymatous nephritis there is no evidence of any retention of nitrogenous bodies in the blood or of any failure in acid elimination, but there is usually inability to excrete the normal amount of salt. The bearing of these observations upon the clinical and chemical phenomena of the two varieties of nephritis is developed clearly by the authors. The retention of urea and other nitrogenous products in the blood due to defective elimination in cases of chronic interstitial nephritis can easily be demonstrated, and the urea in the blood estimated. The absence of any defect in the function of the kidney dealing with salt explains the practical absence of œdema in this form of nephritis. In parenchymatous nephritis, on the other hand, the chief difficulty appears to be in the excretion of the necessary amount of salt, and as an inevitable result there is a retention of water leading to œdema, which, together with albuminuria, is the characteristic feature of this form of the disease. In the investigation of cases Dr. MACLEAN and Dr. RUSSELL recommend the use of salicylsulphonic acid as the best and simplest test for protein in the urine. They give directions for the examination of casts, but point out that the variations they show are not necessarily of much value in assessing the degree of renal inefficiency. For this purpose they bring forward three tests—the estimation of urea in the blood, to which reference has already been made; the new "urea concentration test" of MACLEAN and DE WESSELOW; and the estimation of the diastatic activity of urine, often referred to as the urinary diastase test. The second of these is strongly recommended by the writers of the paper on account of its simplicity and reliability, and since it has been used in nearly 3000 cases their opinion must necessarily be of great weight. The test involves no more complicated procedure than the administration of 15 g. of urea dissolved in about 100 c.cm. of flavoured water, and the estimation of the urea in samples of urine passed one hour, two hours, and occasionally three hours afterwards. Obviously it does not demand either much time or a difficult technique, and it can easily be made a routine procedure in the investigation of cases of renal disease where necessary. The diastase test also involves no very difficult procedure, but to be accurate requires a sample of the 24 hours' urine. Dr. MACLEAN and Dr. RUSSELL find a combination of the three tests very useful. We are glad to notice that they insist on the necessity of due correlation of the data so obtained with the results of a thorough clinical examination.

As affording some definite measure of renal efficiency, and indicating which of the kidney functions are involved, these tests afford valuable aid in prognosis and in treatment; it is not too much to hope that when the methods have been more widely applied and more fully developed some progress will be made towards a scientific classification of cases of nephritis, for those at present current are partly clinical, partly pathological, and all admittedly unsatisfactory. Dr. MACLEAN and Dr. RUSSELL give the normal figures obtained with the three tests they recommend, and indicate the departures therefrom which are to be regarded as of grave significance. They state that only one-fourth to one-sixth of the total kidney substance is really necessary to carry out the body needs, and, further, that it is only when the kidney efficiency is reduced to one-fourth or less of its original value that there is any tendency for urea to be retained in excess in the blood. In the light of their researches they have also examined the recent suggestion of EPSTEIN to give a liberal protein diet to cases of parenchymatous nephritis with marked dropsy. They have found that the disappearance of the dropsy which frequently occurs after this diet is always associated with an

increase in the blood urea. They therefore suggest that the increased excretion of urine is due to the diuretic action of this urea, and in support of this they find that large doses of urea given to such patients also lead to a disappearance of the dropsy. They are of opinion that the new forms of treatment may enable such patients to survive the dangerous dropsical stage of parenchymatous nephritis and pass into the less distressing chronic interstitial stage. Here they allow that limitation of protein intake may be beneficial, but they strongly deprecate the very low diet to which these patients are often condemned. The paper as a whole teems with practical suggestions and will be of great service to the practitioner who wishes to diagnose and treat his cases of renal disease on sound and scientific lines. It marks a notable advance in our knowledge of certain difficult and distressing diseases.

The Research Defence Society.

THE annual general meeting of the Research Defence Society will be held next Wednesday at 11, Chandos-street, the house of the Medical Society of London, when the chair will be taken by Lord LAMINGTON, the President. Lord KNUTSFORD, the Chairman of Committee, will submit the annual report. That report will show great activity on the part of the Society, and the Chairman, with characteristic humour, suggests that any fall away in the amount of work done before the war may be attributed partly at least to "the prevalent indifference towards our opponents." With regard to that we wish to lay stress upon a point, taken up also by Lord KNUTSFORD, that the Research Defence Society has to reckon with a wider sort of attack from those hostile to research than marked the earlier campaigns. Resistance to experimentation on animals no longer marks the scope of their blindness alike to facts and to the calls of real humanity. The protective treatments, founded on and emerging from such experimentation, are all in the near future likely to be impeded in their beneficial influence by the opponents of the applications of physiology to therapeutics. The admirable address by Sir WALTER FLETCHER on the work of the Research Defence Society, which we noticed in these columns a fortnight ago, shows well that the Society has before it a great task to educate the ignorant, appease the fanatic, and convince the reasonable man. Sir DAVID FERRIER is the honorary treasurer of the Research Defence Society; Mr. STEPHEN PAGET is the honorary secretary, assisted by Captain W. E. ELLIOT, a medical Member of Parliament; and all communications should be addressed to 11, Chandos-street, Cavendish-square, London, W.1. Money is needed.

UNIVERSITY OF LONDON.—The Senate has resolved to institute a diploma in psychological medicine which shall be open to all registered medical practitioners. The standard in psychological medicine required for the purpose of the proposed diploma will be approximately that required by the University of Cambridge for its diploma in psychological medicine.

GIFT TO BELFAST HOSPITAL.—Mr. George L. Moore, of Forest Hill, formerly in practice as a solicitor at Belfast, has intimated his intention of making a gift of £20,000 to the Royal Victoria Hospital, Belfast, in grants of not less than £1000 every year. A scheme is being formulated for the establishment of a ward to be called the "Moore Ward."

Annotations.

"Ne quid nimis."

A MEMORIAL TO VICTOR HORSLEY.

A MOVEMENT has recently been initiated by friends and former colleagues of the late Sir Victor Horsley towards some form of permanent recognition of his services to medical science, and a preliminary letter appealing for subscriptions to this end has appeared in the daily press. The endowment of a Victor Horsley lectureship has been suggested as a suitable memorial, and the Senate of the University of London as its most appropriate trustees; the exact form of its scope and constitution will be decided by a committee of which the officers are Sir Charles Ballance, chairman, Sir Arbuthnot Lane and Dr. E. J. Domville, joint honorary secretaries, and Sir Frederick Mott and Dr. H. H. Tooth, joint treasurers. The present idea is the foundation of an annual lecture, the subject of which should not be confined to medicine, while it may be delivered by any prominent man in any field of progress. Sir Victor Horsley's death from heat-stroke in Mesopotamia is so recent, and his personality was so forcible, that it would be superfluous to recapitulate in any detail the long list of his activities or to recall the brilliance of his career. It will be remembered that the connexion between myxœdema and athyroidism—long a commonplace of the text-book—was first established by Horsley by means of experimental work on monkeys at the Brown Institute. Here he also carried out extensive researches on rabies. As professor of pathology at University College he developed his bent for experimental research in physiopathology; and when, as surgeon to the National Hospital for Diseases of the Nervous System, he met again his old friend Charles Beevor (who, as house physician, had taught him the rudiments of medicine) together they mapped out the motor area of the orang. Their work, published in the Proceedings of the Royal Society, 1886–7–8, in delimiting the cortical motor areas was for many years the standard reference on the subject. In the surgery of the brain and spinal cord Horsley soon became undisputed leader, and, to quote only one of his specialties, his method of performing the Hartley-Krause operation for extirpation of the Gasserian ganglion brought him much fame. One of his latest discoveries was the recognition of loculated spinal meningeal cysts as a cause of paraplegia, and their operative treatment.

Horsley was a born fighter. And his love of the struggle did not always help his cause. He was a most successful champion of freedom for the physiologist in the cause of research, but the enthusiasm which led him ever to consider his own side right was not in other directions so successful. Therefore wide recognition of his splendid ideals is called for now that he is gone. In his later years he turned to medical politics, being elected as a Direct Representative to the General Medical Council in 1897, and remaining a member till 1907. He did admirable work, but his contentiousness sometimes impeded business. He also took a prominent share in inspiring the policy of the British Medical Association, as represented by the present Articles. His aspirations towards Parliament never materialised, though he held strong political views; but it is difficult to imagine his ever serving under a party chief. He was a man of extreme and tireless energy, at play as well as at work; at his own shooting parties he would walk all his guests off their feet. But more than all sport in any field, he loved his work in the laboratory. Though somewhat critical of the efforts of his colleagues, his generosity to his juniors was amazing; he would spend an incredible amount of time and money in helping a younger man in experimental work, and in encouraging his investigations. His own surgical technique was superb. The son of a Royal Academician, he was no mean draughtsman, and was unusual in being almost ambidextrous with pencil, pen, or scalpel. His optimistic manner inspired the

greatest possible confidence in his patients. The man was like a diamond of many brilliant facets—small wonder that their cutting edge occasionally scratched and scarred those with whom he came into conflict. No other medical man of his time was associated with such diverse movements down so many streams of public life. None of the crafts piloted by him ran the slower for his intervention; in fact, he rejoiced in steering them near the rapids, and if necessary through the rapids. There should be no difficulty in obtaining the requisite support to any testimonial to his memory. Among those anxious to be represented will be his scientific colleagues, the Fellows of the Royal Society and of the Royal College of Surgeons of England; his personal friends, and even his personal enemies, who for the most part recognised his sincerity; those women who remember his help in the struggle for political and educational franchise and their younger sisters, more especially those whose admission as medical students to University College Hospital, he did not live to see; and, lastly, members of University College Medical School, from his colleagues to his dressers, who will be proud to perpetuate the memory of a worker who brought so much fame to their school, and who would have rejoiced so heartily in its present magnificent opportunities for development.

APPARENT PULSUS PARADOXUS.

IN pulsus paradoxus the normal increased rapidity of the pulse during deep inspiration is replaced by slowing; the cardiac contractions are correspondingly slowed. In the *Boston Medical and Surgical Journal* of May 20th Dr. Paul D. White has reported an interesting case in which the pace-maker of the heart and the auricles acted normally during inspiration—that is, responded by increased rate—but heart-block was also produced, which led to slowing of the ventricles and therefore of the pulse, simulating pulsus paradoxus. The patient, a soldier, aged 23 years, was admitted to a base hospital on Nov. 10th, 1918, with influenza. There was a history of severe double pneumonia at the age of 5 years, since which time his pulse had always been slow. He said that the fact that his pulse got slower on excitement or exertion had been noted for years. He had suffered from typhoid fever five years ago. Examination showed that he was convalescing from influenza. Polygrams were taken as follows:—

	Auricular rate.	Ventricular rate.
Quiet in bed	43	43
Quiet in bed (later)	40	40
During deep inspiration ...	70	35
Deep expiration	41	41
Immediately after moderate exertion	72	36

The tracings showed that on deep inspiration there were two auricular contractions to one ventricular—a 2 : 1 heart-block. Evidently the auriculo-ventricular bundle was damaged, probably by the disease in childhood, and when the auricular rate rose above a certain level failed to transmit every other impulse. The pace-maker of the heart responded normally to exertion and inspiration by increased rate, but as this was halved in the ventricles their rate actually fell, simulating pulsus paradoxus. During the slow rate of the heart auriculo-ventricular conduction was normal. The slow rate of the pace-maker under ordinary circumstances is noteworthy. Was this due to the disease of childhood affecting the auricle, or did the impaired conductivity of the auriculo-ventricular bundle in some way affect the pace-maker, causing it to settle down to a rate which the bundle was capable of conducting? Volhard[1] has described a similar paradoxical response to change of position. While lying flat the patient had a pulse of 64 and no block; sitting up he had a pulse of 42 with a 2 : 1 block, the auricular rate being 84; on standing the pulse dropped to 22 and became irregular, due to varying degrees of block from 2 : 1 to 5 : 1. Atropin slightly increased the dissociation by increasing the auricular rate, with which the ventricles could not keep pace. Lutembacher has reported a case of "orthostatic bradycardia due to intermittence of conduction of the bundle of His."[2] With an auricular rate of 60 there was no block; at 70 to 80 a 2 : 1 block; and with higher auricular rates 3 : 1 and 4 : 1 blocks.

[1] Deutsch. Arch. f. klin. Med., 1909, xcvii., 348.

THE GIFT FROM THE ROCKEFELLER FOUNDATION TO UNIVERSITY COLLEGE HOSPITAL AND MEDICAL SCHOOL.

THE simple facts of the benefaction to University College Hospital and School have been obscured by so much appreciative comment that we propose to set them out baldly. The figures are in themselves sufficiently impressive. The total sum offered is just under £1,205,000—£835,000 to the University College Hospital and Medical School and £369,800 to the University of London on behalf of University College. Of the former sum £400,000 is to be allocated to the building and equipment of a nurses' home, residents' quarters, obstetrical and bio-chemical departments, and the reconstruction of certain existing buildings. The income from the remaining £435,000 will be devoted to the medical, surgical, and obstetric units, to salaries in the departments of bio-chemistry and pathology, and towards the maintenance of beds in the reconstructed hospital wing. The gift to University College is to be applied to the erection of an anatomical institute and to its maintenance. It is estimated that the increased cost entailed on the hospital and medical school, the provision of which is understood to be an implied condition of the benefaction, will amount to, roughly, £20,000 a year. These are the bare facts. The scale of the benefaction is unique in this country, and our appreciation of the honour to one of the most progressive of the London medical schools is not the less because we reserve a detailed discussion until we have been able to study the terms more closely. Such generosity from another country in the cause of scientific research is somewhat humiliating; it is a measure of the neglect of medical education in the past that the benefaction has evoked such widespread notice. King Edward's Hospital Fund has administered larger sums for charitable purposes without so greatly surprising the people. Had the present gift been distributed over all the medical schools in London it would have been less impressive, and certainly less stimulating; had it been offered exclusively for purposes of research or of teaching it would have been less interesting. But the gift is to be regarded primarily as a tribute to the recent attempt at combining research with training. The clinical unit system, initiated by the Board of Education and carried out at University College Hospital in response to official suggestion, was the innovation which first attracted the notice of the two representatives of the Rockefeller Foundation, and it is to its adoption by University College Hospital that the gift is mainly due.

THE MANIFOLD USES OF RUBBER.

THERE is evidently plenty of rubber available now, judging from the offer of substantial money prizes by the Rubber Growers Association as an award for suggestions as to extending the present uses or for encouraging new uses of this singularly resilient material. Incidentally, this should be good news for scientific research, as rubber is, of course, a great adjunct in the laboratories, while also it is an indispensable servant in medicine and in surgery. The offer, however, probably refers to wider uses, for the relative value of suggestions which are deemed practical will, we understand, depend upon the quantity of raw rubber the adoption of these suggestions would absorb, and special considerations, it is announced, will be given to practical suggestions likely to utilise rubber in *large* quantities. (The italics are not ours, but appear in the conditions laid down by the Association.) Our interest, however, lies in the fact that the offer, generally speaking, should mean that rubber is going to be readily obtainable and at a relatively moderate cost, and an ample supply of the

[2] Archives des Maladies du Cœur, 1919, xii., 145.

material will obviously be a gain to medical science in general. It will be remembered that at one time during the war good rubber was practically unobtainable. There is one thing in regard to rubber, which we hope our rubber producers will give their attention to, and that is its inclination with age to lose its flexible qualities. An old rubber tube, if it has not been constantly used, will frequently be found brittle and full of cracks, and therefore useless for its special purpose. If its flexibility and resiliency could be made permanent the material would be of much greater value. That consideration apart, something is almost bound to come out of this interesting offer, considering the infinity of the applications of rubber, particularly if it should prove that the world's production is such as to make it a cheaper commodity. The assumption arises out of this appeal to the brains of the public to find a bigger outlet for its uses. Improvements in the vulcanising of rubber are announced this week, for which the claim is made that by simplifying the process ways are opened up for new and extensive applications of the material.

A CASE OF LUPUS IN AN ARMY PENSIONER.

A FEW days ago the Minister of Pensions was asked in the House of Commons why treatment had been refused to a private of the Scots Fusiliers suffering from lupus. The recruit had joined voluntarily in 1915 and then was in perfect health, and was passed fit for general service by three separate medical boards. Owing to undue exposure he was sent into hospital with "acute myalgia," and while there lupus developed at the back of one ear. In 1916 he was discharged as totally unfit for service. He was treated at Manchester for lupus, when the treatment was approved and authorised by the Ministry of Pensions. Treatment was continued until last September, when the patient was informed that the Ministry of Pensions did not accept responsibility for lupus and that the treatment was not authorised. Inquiries are being made into the case. If we accept the facts as stated, then it appears clear that the lupus appeared while the patient was in the army, for we may take it that he had no sign of this disease when he was first examined. We are told that he suffered much exposure, and it can hardly be doubted that his service was directly responsible for the appearance of the disease. It is well recognised that the reason that lupus appears very commonly on the nose, cheeks, and ears is due to the fact that these parts are subjected to great variations of temperature from their exposed position and slight blood-supply, and therefore the exposure to which this patient was subjected should be held responsible for the disease. Investigation may show that the facts are not as they were stated, but if the Member who asked the question was correctly informed, we think that the Ministry of Pensions will be acting without the sanction of medical knowledge in disclaiming responsibility.

CONGENITAL STENOSIS OF BOTH URETERAL ORIFICES.

Dr. Isabel M. Wason,[1] writing from the Brady Laboratory of Pathology and Bacteriology of the Yale University School of Medicine, reports the following unusual case. A poorly nourished male infant, aged 7 months, was admitted to hospital for diarrhœa. Physical examination was negative. Death took place 14 days after admission. The autopsy showed double hydronephrosis with dilated tortuous ureters, which ended in cystic dilatations in the small vesical cavity. The ureteral orifices were not visible to the naked eye, but in serial sections they were found to be stenotic and to measure ½ to ¼ mm. in diameter. There was also a valve in the prostatic urethra extending from the lower end of the verumontanum to the right urethral wall. In her commentary on the case Dr. Wason states that the presence of a valve formation in the lower prostatic urethra is probably the commonest cause of double hydronephrosis in children. Such an obstruction is usually bilateral, and the urine can only pass through a narrow slit. This gives rise to dilatation of the urethra above this point, dilatation and hypertrophy of the bladder, dilatation of both ureters, and double hydronephrosis. In the present case, however, the valve was found on one side only and did not cause sufficient obstruction to the passage of urine to produce dilatation of the upper prostatic urethra and of the bladder. The dilatation of the ureters and renal pelves was, therefore, not due to the prostatic valve, but to the stenosis of the ureteral orifices, which was possibly caused by a partial overgrowth of epithelium and muscle in embryonic life. Congenital stenosis with cystic dilatation of the vesical end of one ureter is unusual, but to find the condition present to the same extent in both ureters, as was exemplified in Dr. Wason's case, is extremely rare.

[1] Journal of Urology, April, 1920.

THE POSITION OF VETERINARY SCIENCE.

THE Veterinary Surgeons Act (1881) Amendment Bill was read a third time on June 11th, and it seems quite probable that the Bill will pass into law. For some time now there has been a lack of funds available for the Royal College of Veterinary Surgeons to enable it to carry out its statutory duties and to improve veterinary education. The chief object of the Bill is to remedy this situation, and to this end it provides for the compulsory annual payment of 1 guinea by all members of the College who are in active practice in the United Kingdom. The Bill also gives status to the practitioners who were registered under the Act of 1881, and makes them amenable to the discipline of the profession, while it also provides that companies shall not infringe the Act of 1881. Much controversy has arisen about the status of veterinary science in this country, and many educationalists think that great benefit would accrue to the scientific status of the profession through a provision at all universities for the granting of veterinary degrees. But the practical value of a university degree would depend on the facilities existing in a university for the imparting of veterinary instruction. It would only be by a slow and gradual process that these facilities could be obtained, and then if there was not sufficient demand for university veterinary degrees the innovation would be a barren one. The profession only numbers about 3000 all told. It is only a small one, and the prizes securable in it are not likely to cause a great rush of intellectuals to seek entry into its ranks. At the present time two universities grant three veterinary degrees. The Liverpool University grants the degrees of D.V.H. (Diploma in Veterinary Hygiene) and D.V.Sc. (Doctor in Veterinary Science), and the Victoria University, Manchester, grants the D.V.S.M. (Diploma in Veterinary State Medicine), whilst the University of London grants facilities for the taking of the B.Sc. degree concurrently with the M.R.C.V.S. diploma. The real advancement of veterinary science can only follow an educational campaign in the whole realm of animal breeding and rearing. The difficulty is to get the zeal for the benefits of science into the hearts of the workers among animals. Appalling ignorance abounds and sheer laziness increases every day. In quite recent times we have heard of such mediæval enormities being committed as these:—human fæces put on to a festering sore to enable it to heal, a red herring tied to a cow's tail with the object of making it rise, and a sliced raw onion put into a mare's vagina to cure colic. The simple lessons of hygiene in many cases are not known, and even where known in perhaps over 60 per cent. of cases they are not practised. To procure any real advance in veterinary science disease-prevention work by veterinarians needs preceding by a decade or two of disease-prevention instruction and work by stock attendants, stock owners, farmers, dairymen, and agricultural and town landlords. The whole question is one of education, finance, and zeal for hygiene. How long will it take to bring these things up to a really effective pitch? At present the good food that veterinary science provides is not half assimilated by those for whom it is intended, and any culinary refinements will be thrown away or wasted.

BRITISH MEDICAL ASSOCIATION:

PROGRAMME OF ANNUAL MEETING.

THE eighty-eighth annual meeting of the Association will be held at Cambridge, under the Presidency of Sir T. Clifford Allbutt, Regius Professor of Physic in the University, who will deliver his address on Tuesday, June 29th, preceding the sectional proceedings.

The Representative Meeting will begin in the Examination Halls on Friday, June 25th, at 10 A.M., and the statutory annual general meeting will be held at the Examination Halls on Tuesday, June 29th, at 2 P.M.

The annual dinner will be held in the Hall of St. John's College at 8 P.M., on Thursday, July 1st. The popular lecture will be given by Dr. G. S. Graham-Smith, F.R.S., on "Flies" at 8.30 P.M. on Friday, July 2nd.

DEMONSTRATIONS.

Laboratory and clinical demonstrations will be given on three consecutive days from 2.30 to 4.30 P.M., commencing on Wednesday, June 30th. The directors of demonstrations are:—

Medicine: Dr. Aldren Wright.
Surgery: Mr. Arthur Cooke.
Physiology: Professor J. N. Langley, F.R.S.
Pharmacology: Professor W. E. Dixon, F.R.S.
Neurology: Dr. E. D. Adrian.
Pathology: Professor Sir G. Sims Woodhead.

THE SECTIONS.

The scientific business of the meeting will be conducted in 12 sections, which will meet on the days indicated from 10 A.M. to 1 P.M., the demonstrations following in the afternoons.

Medicine.

President: Sir Humphry D. Rolleston, K.C.B., M.D., F.R.C.P.

Honorary Secretaries: A. J. Jex-Blake, M.D., F.R.C.P. (13, Ennismore-gardens, London, S.W.7); W. E. Hume, M.D., F.R.C.P. (4, Ellison-place, Newcastle-on-Tyne); E. Lloyd Jones, M.D. (59, Trumpington-street, Cambridge); J. Aldren Wright, M.D., M.R.C.P. (Director of Demonstrations, 2, Corpus-buildings, Cambridge).

June 30th (Morning Session).—Discussion on the Diagnosis of Nervous Disorders of the Stomach and Intestines. To be opened by Dr. A. F. Hurst.

In the afternoon Mr. J. Barcroft will demonstrate Methods of Analysing the Gases of the Blood and Alveolar Air.

July 1st (Morning Session).—Discussion on the Present Position of Vitamines in Clinical Medicine. To be opened by Professor F. Gowland Hopkins.

July 2nd (Morning Session).—Discussion on the Clinical Significance and Course of Subacute Bacterial Endocarditis. To be opened by Sir Thomas Horder.

An exhibition of specimens illustrating the subject of this discussion will be held in the Pathological Museum.

Surgery.

President: Sir George H. Makins, G.C.M.G., C.B., P.R.C.S.

Honorary Secretaries: W. H. Bowen, M.S., F.R.C.S. (24, Lensfield-road, Cambridge); Arthur Cooke, F.R.C.S., Grove Lodge, Cambridge (Demonstration Secretary); G. E. Gask, C.M.G., D.S.O., F.R.C.S. (41, Devonshire-place, London, W.1); Gordon Taylor, O.B.E., M.S., F.R.C.S. (15, Harley-street, London, W.1).

June 30th (10 A.M.).—Discussion: Surgical Treatment of Gastric Ulcer. To be opened by Sir Berkeley G. A. Moynihan and Dr. Charles H. Mayo.

July 1st (10 A.M.).—Discussion: Surgical Treatment of Cancer of the Rectum. To be opened by Mr. W. Ernest Miles and Mr. Grey Turner.

Demonstration in the afternoon by Colonel R. H. Elliot on Glaucoma.

July 2nd (10 A.M.).—Discussion: End-Results of Injuries to the Peripheral Nerves treated by Operation. To be opened by Sir William Thorburn and Mr. Percy Sargent.

Demonstrations will be given in the afternoons by Major Meurice Sinclair on the Treatment of Fractures; by Mr. H. D. Gillies and Mr. Percival Cole on Plastic Surgery of the Face; by Mr. Herbert Tilley on Endoscopy of the Lower Air Passages and Gullet; and by Mr. Arthur Cooke on the Technique of Blood Transfusion.

Neurology and Psychiatry.

President: Henry Head, M.D., F.R.S.

Honorary Secretaries: E. D. Adrian, M.D., M.R.C.P. (Trinity College, Cambridge); E. Farquhar Buzzard, M.D., F.R.C.P. (78, Wimpole-street, London, W.1); George Riddoch, M.D., M.R.C.P. (10, Alba-gardens, Golders Green, London, N.W.4).

June 30th (Morning Session).—Discussion on the Early Signs of Nervous Disease and their Interpretation. To be opened by Henry Head, M.D., F.R.S.

July 1st (Morning Session).—Discussion on Dementia Præcox and its Relation to other Conditions. To be opened by Bernard Hart, M.D.

July 2nd (Morning Session).—Discussion on Psychotherapy. To be opened by T. A. Ross, M.D.

Demonstrations are being arranged for two afternoons; particulars will be announced later.

Pathology and Bacteriology.

President: Professor J. Lorrain Smith, M.D., F.R.S.

Honorary Secretaries: A. E. Clark-Kennedy, M.R.C.S., L.R.C.P. (Corpus College, Cambridge); A. E. Gow, M.D., F.R.C.P. (37, Queen-Anne-street, London, W.1); Helen Ingleby, M.D., M.R.C.P. (44, Welbeck-street, London, W.1).

June 30th.—Atrophy of the Liver. To be opened by Professor Stuart McDonald, M.D., F.R.C.P.

July 1st.—The Present Position of Cancer Research. To be opened by J. A. Murray, M.D.

July 2nd.—The Bacteriology of Cerebro-spinal Meningitis. To be opened by J. A. Arkwright, M.D., F.R.C.P. (A collection of specimens to illustrate the subject under discussion will be available.)

The afternoons will be devoted to meetings of the Pathological Society of Great Britain and Ireland.

Physiology and Pharmacology.

President: Professor F. Gowland Hopkins, M.B., F.R.S.

Honorary Secretaries: D. V. Cow, M.D. (The Bridge House, Great Shelford, Cambridge); Edward Mellanby, M.D. (32, Addison Mansions, Kensington, London, W.14).

June 30th.—Discussion on Acidosis in Disease. To be opened by Professor F. Gowland Hopkins.

July 1st.—Discussion on the Physiology and Treatment of Denervated Muscle. To be opened by Professor J. N. Langley, F.R.S.

July 2nd.—Discussion on Quinine and its Derivatives. To be opened by Professor W. E. Dixon, F.R.S.

Naval and Military.

President: Colonel Joseph Griffiths, C.M.G., M.D., F.R.C.S.

Honorary Secretaries: Major A. S. M. Macgregor, O.B.E., M.D., R.A.M.C.(T.) (Sanitary Chambers, Glasgow); Major H. B. Roderick, O.B.E., M.Ch., M.D., R.A.M.C.(T.) (17, Trumpington-street, Cambridge); Lieutenant-Colonel F. E. Apthorpe Webb, O.B.E. (Grafton House, Maid's Causeway, Cambridge).

June 30th (10 A.M.).—Discussion on the Army Medical Service and its Relation to the Education and Training of Newly Qualified Medical Men, to be opened by the President. 2.30 P.M.—The Naval, Military, and Air Force Medical Services will exhibit the new inventions and equipments that arose during the Great War. Each department will be fully represented, and each will be in charge of an officer who will be prepared to demonstrate and explain the exhibits.

Obstetrics and Gynæcology.

President: Herbert Williamson, M.B., F.R.C.P.

Honorary Secretaries: Malcolm Donaldson, M.B., F.R.C.S. (145, Harley-street, London, W.1); W. R. Grove, M.D. (St. Ives, Hunts).

June 30th.—Discussion on Puerperal Sepsis. (1) Mr. Victor Bonney (London): Introductory Paper. (2) Mr. H. Beckwith Whitehouse (Birmingham): Surgical Treatment of Uterus in Puerperal Sepsis. (3) Dr. A. E. Gow (London): Intravenous Protein Therapy in Treatment of Puerperal Septicæmia. (4) Dr. Leith Murray (Liverpool): Use of Serums and Vaccines in the Treatment of Puerperal Sepsis.

July 1st.—At 10 A.M. there will be a joint session with the Section of Electro-therapeutics to discuss the Treatment of Fibroids by X Rays. Opened by Dr. R. Knox.

Dr. R. Mackenzie Wallace will give a demonstration of the Diastase Reaction on Wednesday, followed by a demonstration from Mr. M. S. Mayou on Ophthalmia Neonatorum.

Tropical Medicine.

President: Professor G. H. F. Nuttall, M.D., F.R.S.

Honorary Secretaries: Charles Frederick Searle, M.D. (67, Bridge-street, Cambridge); J. Gordon Thomson, M.B. (24, Herne Hill, London, S.E.24).

June 30th (Morning Session).—Papers: (1) Problem of Filariasis, by Drs. Stephens and Yorke. (2) Rôle of *F. bancrofti* in the Production of Lymphatic Obstruction and a Consideration of Elephantiasis from the Pathological Standpoint, by Dr. G. C. Low and Dr. P. H. Manson-Bahr. (3) Dietetic Deficiency and Endocrine Activity, with Special Reference to Deficiency Œdemas, by Lieutenant-Colonel Robert McCarrison, I.M.S.

In the afternoon there will be the following demonstrations: (1) Parasitic Worms, by Dr. R. T. Leiper. (2) Exhibition Collection of all known species of Tsetse Flies, with demonstration dealing with the Morphology and Bionomics, by Professor Newstead. (3) Demonstration of the use of the Mobile Laboratory for Malarial Inquiries in England, by Colonel S. P. James. (4) Paintings illustrating the Treatment of Leprosy, by Lieutenant-Colonel Sir Leonard Rogers.

Medical Education.

President: Sir George Newman, K.C.B., M.D., F.R.C.P.

Honorary Secretaries: S. R. Gloyne, M.D. ("Hatherley," Chalfont St. Giles, Bucks); Professor J. Kay Jamieson, M.B. (Dean of Faculty of Medicine, Leeds).

July 1st (10 A.M. to 1 P.M.).—Address by the President. Discussion: Preliminary Scientific Education in the Medical Curriculum. Openers: Professor S. J. Hickson (Biology); Professor Arthur Keith (Anatomy); Professor Sir Ernest Rutherford (Physics); Professor J. Lorrain Smith (Pathology); Professor A. Smithells (Chemistry).

Venereal Diseases.

President: E. B. Turner, F.R.C.S.

Honorary Secretaries: W. H. Harvey, M.D. (The Dene, Great Shelford, Cambridge); Otto May, M.D. (19, Well Walk, Hampstead, London, N.W.3).

July 1st (10 A.M.).—Discussion on Venereal Diseases in Women and Children: (1) Dr. Morna Rawlins: Treatment of Veneral Disease in Women. (2) Dr. Leonard Findlay: Venereal Diseases in Children.

In the afternoon there will be a clinical demonstration at the Venereal Diseases Clinic, Addenbrooke's Hospital, and a laboratory demonstration in the Medical Schools under the direction of Mr. J. E. Barnard.

The following Sections meet on Friday only:—

Electro-therapeutics.

President: Alfred Ernest Barclay, M.D.

Honorary Secretaries: E. P. Cumberbatch, M.B., M.R.C.P. (15, Upper Wimpole-street, W.1); F. Shillington Scales, M.D. ("Redcourt," Adams-road, Cambridge).

July 2nd.—Presidential address by Dr. A. E. Barclay; Place of the Radiologist in Medicine. Discussion on the Diagnosis and Treatment of Paralysis caused by Nerve Injury, to be opened by Mr. H. S. Souttar. Joint Discussion with Section of Obstetrics and Gynæcology on Treatment of Uterine Fibroids (see above).

Medical Sociology.

President: G. E. Haslip, M.D.

Honorary Secretaries: S. Morton Mackenzie, M.B. (9, Rose-hill, Dorking); C. M. Stevenson, M.D. (90, Chesterton-road, Cambridge).

July 2nd (10 A.M.).—Sir George Newman will open a discussion on the Future of Medical Practice, dealing with the subject from the point of view of the State. The discussion will be continued by Sir Wilmot Herringham from the standpoint of the Consultant; Dr. Alfred Linnell from that of the General Practitioner; Professor F. Gowland Hopkins from that of Medical Research; and Mr. E. W. Morris, C.B.E., house governor London Hospital, from that of the Hospitals.

Pathological Museum.

Committee: Sir German Sims Woodhead, K.B.E. (chairman), Dr. L. Cobbett, Dr. G. S. Graham-Smith, Dr. W. H. Harvey, Mr. T. S. P. Strangeways, and Dr. H. B. Roderick, M.Ch. (honorary secretary).

The Pathological Museum arranged in connexion with the meeting will occupy a central position in two temporary buildings in the first court of the Medical Schools. It is proposed to arrange the material under the following heads: (1) Exhibits bearing on discussions and papers in the various Sections. (2) Specimens and illustrations relating to any recent research work. (3) Individual specimens of special interest or a series illustrating some special subject. (4) Instruments or appliances relating to clinical diagnosis and pathological investigation. There will also be a series of exhibits illustrative of war specimens, arthritis, cerebro-spinal meningitis, and parasitology. So far as practicable each section will be under the charge of a demonstrator, but exhibitors will have an opportunity of demonstrating their own specimens.

Communications regarding material for exhibition should be addressed to Dr. H. B. Roderick, at the Surgical Department, Medical School, Cambridge.

The honorary local secretaries of the meeting are J. F. Gaskell, M.D., F.R.C.P., The Uplands, Great Shelford, near Cambridge, and G. S. Haynes, M.D., 58, Lensfield-road, Cambridge. Communications should be addressed to them at the Medical Schools, Cambridge.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

The Increase in the Medical Profession.

AT the final examination for medical degrees in the Sydney University 49 candidates were successful, while 69 failed. In the University of Melbourne 42 succeeded and 24 were rejected. This represents, with passes in Adelaide, an addition to the ranks of the profession of upwards of 100 practitioners. As the population of Australia is little more than stationary beyond a natural increase, it is evident that the supply of medical practitioners is growing out of proportion to any prospects of practice, although at present there are no signs of overcrowding. It is, however, significant that in Melbourne two bodies have been formed, the one exclusively surgical and the other medical, whose object, amongst other things, is to conserve the status of the true consultant against the inroads of general practitioners who devote their spare time to special practice. At least it would be well for British graduates to have some definite prospect before looking to Australia as a possible field of work.

The Health of Miners: Tuberculosis and Hookworm.

The Federal and State Governments have jointly equipped an institute to inquire into tubercle among the mining population of Bendigo. The objects are:—

1. To determine the actual number of persons suffering from tuberculosis in Bendigo and district.

2. To ascertain the epidemiological factors involved in connexion with the existing infections. These factors would include an investigation into the evidence of infection of persons who have been in contact with infected persons, the relation of the spread of the disease to insanitary conditions, the relations of the disease to mining, &c.

3. To determine the relative importance of bovine and of human infection in the distribution of the disease in Bendigo.

Dr. D. G. Robertson has been placed in charge. A hookworm inquiry is being conducted at the same time.

At Broken Hill the Broken Hill Mine directorate has opened an investigation into the health of the miners and the conditions under which they work (when they do work, which they have not done for very many months). There is a staff of eight medical men, and over 1000 men have already been examined.

University of Sydney.

Professor J. T. Wilson, professor of anatomy, has been appointed Dean of the Medical School in the place of the late Sir T. Anderson Stuart. The future of the chair of physiology was discussed and referred to a sub-committee for consideration.

The Recent Appointments at the Melbourne Hospital.

The recent dissatisfaction with two appointments made to the staff of the Melbourne Hospital on the ground that sufficient attention was not given to the fact that other candidates were returned soldiers, has been allowed to drop after much heated talk and protest. The hospital committee has agreed to a resolution that in all future appointments special preference must be given to applicants with overseas service, but this does not create any new position, and was adopted chiefly to save the faces of those who ought to have known that the most careful consideration had been given to this very point by the advisory committee, but still clamoured for the appointments to be reviewed. The appointments made were not disturbed.

Dr. T. P. Dunhill, C.M.G., who is leaving for London by the *Orvieto* on May 5th, was entertained at dinner by the Victorian Branch, B.M.A., and the Melbourne Medical Association. Readers of THE LANCET will remember the exhaustive study, illustrated by unusually good photographs, on the Surgery of Exophthalmic Goitre, by Dr. Dunhill, which appeared in these columns in December, 1917. Dr. Dunhill will take up his duties as assistant director of surgery at St. Bartholomew's Hospital immediately on arrival in London.

Dr. R. J. Bull, who has for many years been director of bacteriology in the Melbourne University, has been granted leave, and will visit Europe immediately in order to inform himself at first hand of bacteriological progress and teaching.

April 22nd.

URBAN VITAL STATISTICS.

(Week ended June 12th, 1920.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at nearly 18 million persons, the annual rate of mortality, which had been 13·2, 12·8, and 11·6 in the three preceding weeks, further declined to 11·0 per 1000. In London, with a population of nearly 4½ million persons, the annual death-rate was 10·6, or 0·4 per 1000 below that recorded in the previous week, while among the remaining towns the rates ranged from 5·0 in Ealing, 5·2 in Tottenham and in Edmonton, and 6·0 in Wallasey, to 17·2 in Hastings, 17·4 in Blackburn, and 19·6 in Bootle. The principal epidemic diseases caused 272 deaths, which corresponded to an annual rate of 0·8 per 1000, and comprised 89 from measles, 70 from infantile diarrhœa, 48 from diphtheria, 46 from whooping-cough, 14 from scarlet fever, and 5 from enteric fever. Measles caused a death-rate of 2·2 in Leicester, 2·8 in Walsall, and 3·6 in Swansea. The deaths attributed to influenza, which had declined from 216 to 148 in the four preceding weeks, further fell to 86, and included 21 in Sheffield, 13 in London, and 6 in Carlisle. There were 1722 cases of diphtheria and 1642 of scarlet fever under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 1747 and 1635 respectively at the end of the previous week; there were also 4 cases of small-pox belonging to East Ham, of which 3 were admitted during the week. The causes of 28 of the 3770 deaths in the 96 towns were uncertified, of which 8 were registered in Birmingham.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2½ million persons, the annual rate of mortality, which had declined from 18·4 to 13·6 in the five preceding weeks, further fell to 12·7 per 1000. The 291 deaths in Glasgow corresponded to an annual rate of 13·6 per 1000, and included 8 from measles, 7 each from small-pox and infantile diarrhœa, 3 from diphtheria, 2 each from scarlet fever and whooping-cough, and 1 from enteric fever. The 75 deaths in Edinburgh were equal to a rate of 11·5 per 1000, and included a fatal case each of whooping-cough and infantile diarrhœa.

Irish Towns.—The 129 deaths in Dublin corresponded to an annual rate of 16·2, or 2·5 per 1000 below that recorded in the previous week, and included 10 from whooping-cough, 5 from measles, 4 from infantile diarrhœa, and 1 each from enteric fever, scarlet fever, and diphtheria. The 109 deaths in Belfast were equal to a rate of 13·8 per 1000, and included 4 from whooping-cough and 1 each from scarlet fever and infantile diarrhœa.

VITAL STATISTICS OF LONDON DURING MAY, 1920.

IN the accompanying table will be found summarised statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious disease, it appears that the number of persons reported to be suffering from one or other of the ten diseases notified in the table was equal to an annual rate of 6·3 per 1000 of the population, estimated at 4,358,309 persons; in the three preceding months the rates had been 7·7, 7·1, and 6·7 per 1000. Among the metropolitan boroughs the lowest rates from these diseases last month were recorded in Hammersmith, St. Marylebone, Hampstead, Stoke Newington, the City of London, and Woolwich; and the highest in Fulham, Shoreditch, Bethnal Green, Stepney, Poplar, and Lewisham. The case of small-pox notified during May belonged to Greenwich. The prevalence of scarlet fever was slightly less than in the preceding month; this disease was proportionally most prevalent in Fulham, Shoreditch, Bethnal Green, Stepney, Poplar, and Deptford. The Metropolitan Asylums Hospitals contained 1671 scarlet fever patients at the end of the month, against 2266, 1981, and 1795 at the end of the three preceding months; the weekly admissions averaged 228, against 279, 240, and 223 in the three preceding months. Diphtheria was somewhat less prevalent than in April; the greatest prevalence of this disease was recorded in Fulham, St. Pancras, Holborn, Bethnal Green, Poplar, Battersea, and Lewisham. The number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals, which had been 2003, 1964, and 1937 at the end of the three preceding months, numbered 1783 at the end of May; the weekly admissions averaged 214, against 240, 260, and 221 in the three preceding months. The prevalence of enteric fever was somewhat greater than in the preceding month; of the 28 cases notified during the month, 4 belonged to Stepney, 4 to Battersea, 3 to the City of Westminster, 3 to Hackney, 2 to Fulham, 2 to Hampstead, and 2 to Wandsworth. There were 18 cases of enteric fever under treatment in the Metropolitan Asylums Hospitals at the end of the month, against 30, 38, and 29 at the end of the three preceding months; the weekly admissions averaged 3, against 6, 6, and 4 in the three preceding months. Erysipelas was proportionally most prevalent in the City of Westminster, St. Marylebone, Finsbury, Poplar, Southwark, Greenwich, and Lewisham. The 38 cases of puerperal fever included 4 in Fulham, 4 in Islington, and 3 each in Chelsea, Hackney, Poplar, Lambeth, Battersea, and Wandsworth. The 12 cases of cerebro-spinal meningitis included 3 in Southwark and 3 in Battersea. No case of poliomyelitis was notified during the month. The mortality statistics in the table relate to the deaths of civilians actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided. During the four weeks ended May 29th the deaths of 4145 London residents were registered, equal to an annual rate of 12·4 per 1000; in the three preceding months the rates had been 16·6, 17·6, and 15·4 per 1000. The death-rates ranged last month from 7·6 in Hampstead, 9·4 in Wandsworth, 10·7 in Camberwell, and 11·1 in Hackney, to 13·8 in Stoke Newington, 13·9 in Finsbury, 14·0 in Greenwich, 14·6 in Battersea, 14·8 in Bethnal Green, 14·8 in Stepney, and 23·5 in the City of London. The 4145 deaths from all causes included 350 which were referred to the principal infectious diseases; of these, 115 resulted from measles, 11 from scarlet fever, 67 from diphtheria, 85 from whooping-cough, 7 from enteric fever, and 65 from diarrhœa and enteritis under 2 years of age. No death from any of these diseases was recorded last month in Holborn or the City of London. Among the metropolitan boroughs the lowest death-rates from these diseases were recorded in Chelsea, the City of Westminster, Hampstead, Stoke Newington, and Lewisham; and the highest in St. Pancras, Finsbury, Bethnal Green, Stepney, Bermondsey, and Battersea. The 115 deaths from measles were 52 below the average number in the corresponding period of the five preceding years; this disease was proportionally most prevalent in Paddington, Stepney, Southwark, Bermondsey, Battersea, and Camberwell. The 11 fatal cases of scarlet fever were equal to the average, and included 2 in Islington. The 67 deaths from diphtheria exceeded the average by 28; the greatest proportional mortality from this disease occurred in Hammersmith, Fulham, Hackney, Finsbury, Bethnal Green, and Bermondsey. The 85 fatal cases of whooping-cough were 19 fewer than the average; this disease was proportionally most fatal in St. Pancras, Hackney, Bethnal Green, Poplar, Bermondsey, and Battersea. Seven deaths from enteric fever were registered during the month, against an average of 6; of these deaths, 2 belonged to Hampstead. The 65 fatal cases of infantile diarrhœa were 13 in excess of the average; the greatest proportional mortality from this disease occurred in Kensington, Hammersmith, St. Marylebone, Finsbury, Shoreditch, Stepney, and Southwark. In conclusion, it may be stated that the aggregate mortality in London during May from these principal infectious diseases was 7·7 per cent. below the average in the corresponding period of the five preceding years.

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING MAY, 1920.

(*Specially compiled for* THE LANCET.)

CITIES AND BOROUGHS.	Estimated civil population, 1919.	Notified Cases of Infectious Disease.											Deaths from Principal Infectious Diseases.								Deaths from all causes.	Death-rate per 1000 living.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Poliomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Enteric fever.	Diarrhœa and enteritis (under 2 years).	Total.	Annual rate per 1000 persons living.		
LONDON	**4,358,309**	**1**	**950**	**886**	—	**28**	—	**38**	**178**	**12**	—	**2093**	**6·3**	—	**115**	**11**	**67**	**85**	**7**	**65**	**350**	**1·0**	**4145**	**12·4**
West Districts:																								
Paddington	143,938	—	20	32	—	1	—	—	6	—	—	59	5·3	—	9	—	3	2	—	1	15	1·4	145	13·1
Kensington	157,886	—	36	27	—	1	—	—	7	—	—	71	5·9	—	3	—	3	1	—	8	15	1·2	152	12·5
Hammersmith	130,981	—	10	19	—	—	—	—	2	—	—	31	3·1	—	2	—	4	—	—	4	10	1·0	128	12·7
Fulham	152,543	—	52	47	—	2	—	4	6	—	—	111	9·5	—	2	—	4	2	1	—	9	0·8	140	12·0
Chelsea	60,573	—	16	8	—	—	—	3	2	—	—	29	6·2	—	1	—	1	—	—	—	2	0·4	57	12·3
City of Westminst'r	127,533	—	31	17	—	3	—	—	7	—	—	58	5·9	—	1	1	—	—	—	—	2	0·2	114	11·7
North Districts:																								
St. Marylebone	97,953	—	16	11	—	—	—	2	5	—	—	34	4·5	—	1	1	—	2	—	3	7	0·9	88	11·7
Hampstead	88,012	—	12	11	—	2	—	—	2	—	—	27	4·0	—	—	—	—	—	2	1	3	0·4	51	7·6
St. Pancras	219,434	—	32	57	—	1	—	—	9	1	—	100	5·9	—	6	1	3	11	—	4	25	1·5	214	12·7
Islington	323,034	—	53	65	—	1	—	4	12	1	—	136	5·5	—	9	2	7	5	—	3	26	1·0	329	13·2
Stoke Newington	50,954	—	7	10	—	—	—	—	—	—	—	17	4·3	—	—	—	1	—	—	1	2	0·5	54	13·8
Hackney	216,736	—	48	52	—	3	—	3	10	—	—	116	7·0	—	3	—	7	7	—	3	20	1·2	185	11·1
Central Districts:																								
Holborn	38,156	—	4	15	—	—	—	—	1	1	—	21	7·2	—	—	—	—	—	—	—	—	—	38	13·0
Finsbury	75,291	—	18	13	—	—	—	—	7	—	—	38	6·6	—	2	1	2	2	—	2	9	1·6	80	13·9
City of London	13,893	—	2	2	—	—	—	—	—	—	—	4	3·8	—	—	—	—	—	—	—	—	—	25	23·5
East Districts:																								
Shoreditch	98,134	—	33	20	—	—	—	1	1	—	—	55	7·3	—	—	—	1	2	—	3	6	0·8	96	12·8
Bethnal Green	110,085	—	44	29	—	—	—	2	4	1	—	80	9·5	—	2	1	4	5	1	2	15	1·8	125	14·8
Stepney	232,506	—	75	47	—	4	—	2	8	1	—	137	7·7	—	11	—	3	5	1	6	26	1·5	264	14·8
Poplar	153,644	—	46	40	—	1	—	3	8	—	—	98	8·3	—	2	—	3	9	1	2	17	1·4	154	13·1
South Districts:																								
Southwark	179,971	—	26	28	—	—	—	—	16	3	—	73	5·3	—	9	—	—	2	—	5	16	1·2	179	13·0
Bermondsey	124,239	—	22	17	—	—	—	1	5	—	—	45	4·7	—	5	—	3	5	—	3	16	1·7	129	13·5
Lambeth	282,322	—	73	59	—	—	—	3	13	1	—	149	6·9	—	7	—	2	2	—	3	14	0·6	271	12·5
Battersea	159,316	—	22	49	—	4	—	3	3	3	—	84	6·9	—	10	1	2	7	—	4	24	2·0	178	14·6
Wandsworth	333,693	—	72	67	—	2	—	3	14	—	—	158	6·2	—	11	1	3	3	—	—	18	0·7	241	9·4
Camberwell	273,802	—	63	51	—	—	—	1	6	—	—	121	5·8	—	10	1	6	5	—	1	23	1·1	224	10·7
Deptford	111,205	—	31	18	—	—	—	2	3	—	—	54	6·3	—	2	1	1	2	—	5	11	1·3	100	11·7
Greenwich	98,484	1	23	11	—	1	—	—	6	—	—	42	5·6	—	2	—	—	3	—	1	6	0·8	106	14·0
Lewisham	167,754	—	40	46	—	1	—	—	11	—	—	98	7·6	—	2	—	3	1	1	—	7	0·5	150	11·7
Woolwich	136,237	—	23	18	—	1	—	1	4	—	—	47	4·5	—	3	—	1	2	—	—	6	0·6	128	12·2
Port of London	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

Correspondence.

"Audi alteram partem."

PERICARDIAL FRICTION AND CORONARY THROMBOSIS.

To the Editor of THE LANCET.

SIR,—In an annotation in THE LANCET of June 5th (p. 1232) you call attention to transient pericardial friction as a sign of coronary thrombosis, and to six cases reported by Dr. L. W. Gorham, of Albany. You speak of this condition as "almost unrecognised," and "not mentioned in the text-books." Dr. Gorham's cases are very interesting, but it is hardly true that patches of pericarditis at the sites of coronary thrombosis have not been fully recognised in England. If your readers will do me the honour to turn to my work on "Diseases of the Arteries," Vol. II., pp. 460ff, they will find these events discussed at some length. The occasional relation to angina pectoris also is indicated, and suggestions made to explain the occurrence of anginal pains in some cases in which, with coronary thrombosis, there is no pericarditis.

I admit I have not had the good fortune to meet with the considerable pathological proofs which have fallen to the lot of Dr. Gorham, but do not let us in England appear ignorant of the subject.

I am, Sir, yours faithfully,

Cambridge, June 12th, 1920. CLIFFORD ALLBUTT.

WAR ŒDEMA AND EPIDEMIC DROPSY.

To the Editor of THE LANCET.

SIR,—I have read the letter by Dr. J. A. Nixon in THE LANCET of April 24th on the subject of War Œdema and Epidemic Dropsy. I do not consider that any confusion will result from Dr. A. D. Bigland's valuable article on "Œdema as a Symptom in So-called Food-deficiency Diseases"; on the contrary, it gives a very clear and complete account of our present knowledge of the subject. Indeed, Dr. Nixon himself somewhat obscures the issues when he states that "the disease called by Macleod epidemic dropsy, with its itching, burning, and erythema or urticaria which preceded or accompanied the anasarca, was probably ankylostomiasis." In the course of my investigations on the Ætiology of Epidemic Dropsy in India, published in the Scientific Memoirs of the Government of India, Nos. 45 and 49, I obtained no evidence that the disease was ankylostomiasis; on the other hand, the results of my researches pointed definitely to epidemic dropsy, as seen by me in Calcutta and other places in India, being a form of food-deficiency disease. The statement that "this dropsical disease was by no means confined to the impoverished and sickly" proves nothing, because it is necessary to remember in this relation that the diet of well-to-do people, although expensive, may be, from the modern view-point, nutritionally deficient; thus highly polished rice, which is consumed by the richer classes in India, is more costly than the coarser varieties of rice, but, as is now well known, the former is more deficient in vitamines than the latter.

I am, Sir, yours faithfully,

E. D. W. GREIG.

Pasteur Institute of India, Kasauli, May 21st, 1920.

THE STANDARDISATION OF COLOUR PERCEPTION.

To the Editor of THE LANCET.

SIR,—I have read Mr. Herbert Parsons's letter in THE LANCET and have to thank Mr. Percy Dunn for his reply in your last issue. I shall welcome Mr. Parsons's attack on my views, but I hope it will not appear in a lay paper. The editors of different lay papers have received communications depreciating my work, and though none of these have been inserted, in any case I wish to reply through a scientific medium. Mr. Parsons should be the last person to belittle my work, as he is now using my methods after having opposed them long and fiercely. In 1889, as member of the International Code of Signals Committee, I constructed the lantern, which is now the official test of the navy, for the Board of Trade. Opinion at that time, however, was in favour of the wool test and the non-use of colour names. A special committee of the Royal Society was appointed which recommended the wool test. This discredited me for many years. The wool test is now obsolete, as more than 50 per cent. of dangerously colour-blind persons can pass it and a very large percentage of normal-sighted are rejected. Yet in 1912, in a new edition of his book, Mr. Parsons wrote:—

"The fundamental axiom in colour testing is that no importance should be attached to the naming of colours..... Holmgren's wools are sufficiently good."

This statement was made when nearly the whole world had recognised the inefficiency of the wool test and the necessity for the use of colour names. In the Ophthalmological Section at the British Medical Association meeting at Brighton, 1913, a resolution was proposed condemning the wool test. Mr. Parsons was the sole member who voted against the resolution.

I have for many years whenever a foreign scientist interested in vision has visited me, and has told me that he was going on to one of my opponents, requested him to let me know of any objection made so that I could answer it. In every case on returning he has told me that certain particular people, the same in every case, had nothing good to say of my work, but were quite unable to point out any fact or deduction which was wrong. I naturally look forward to having something to which I can reply.

I am, Sir, yours faithfully,

London, June 12th, 1920. F. W. EDRIDGE-GREEN.

To the Editor of THE LANCET.

SIR,—Mr. Percy Dunn's saeva indignatio has led him into making some rhetorical exaggerations. "The 100 per cent. of those who have failed to prove that any of his statements are wrong" is one such. The following is an example refuting this pronouncement. Lord Rayleigh stated that he could distinguish between the wave-lengths included in a monochromatic division to the extent of discriminating between the colours of the two D lines.[1] Dr. Edridge-Green traversed this statement and attributed the error to "the admixture of small quantities of white and coloured light and to certain physiological influences."[2] Dr. Wm. Watson conclusively disproved any such influence of admixture with white light,[3] and found that 14 observers gave the following mean values with sodium light: width of monochromatic patch = 4·5 $\mu\mu$; difference in wave-length easily detected as a change in hue = 1·4 $\mu\mu$. It is further to be remembered that there is a wealth of argument against some of Dr. Edridge-Green's theories, so that opponents may not have felt it necessary to controvert them. Thus, I know of, at any rate, one scientist whom Dr. Edridge-Green claims as a strong adherent, who yet dissents entirely from his theory as to the action of the visual purple.

With regard to the "prejudicial attitude" assumed against Dr. Edridge-Green, this, if true—and I believe it originated in events occurring before I became actively interested in the subject—was a personal matter and does not affect the scientific arguments. I have yet to be convinced that the Royal Society was so influenced as to commit the worst crime against science—that of perverting scientific truth from ulterior motives.

I have already said that I consider Dr. Edridge-Green's colour perception lantern good, and it is not surprising, for reasons stated in my last letter among others, that various Government departments have adopted it. I fail to follow Mr. Dunn's arguments that a test requiring skilled knowledge is better than one more "fool-proof." Would a test for visual acuity be

[1] Proc. Roy. Soc. B., 1910, vol. lxxxii., p. 458.
[2] Ibid., 1911, vol. lxxxiv., p. 116.
[3] Ibid., 1911, vol. lxxxiv., p. 118.

better if a high degree of special training were required to use it? That depends, I take it, upon the degree of accuracy required for the given purpose. I must confess that I cannot interpret the innuendo contained in the last sentence of Mr. Dunn's letter.

I am, Sir, yours faithfully,
J. HERBERT PARSONS.

Queen Anne-street, Cavendish-square, W., June 14th, 1920.

POISONING BY EXHAUST GAS.

To the Editor of THE LANCET.

SIR,—On May 8th I was called to see two children, aged respectively 11 and 6 years, with the following history:—

They started to drive 10½ miles in a half-covered business car, open to the front, which contained groceries. They were inside the car, the mother sitting on the front seat by the driver. When they had driven 10 miles the mother heard one of the children crying; she got down and found the younger child delirious, with her head fallen forward; the elder child was trying to comfort the younger one. She got them out of the car, when the elder child staggered about the road and fell down. She put them on the seat by the driver and came on to Lichfield.

I found them both in a state of semi-collapse. Pulse small and feeble. Faces pale. No cyanosis. They were constantly sick, which ultimately became bilious in character. In the evening the elder child complained of headache. The younger child was better, but developed a croupy cough during the night, with no physical signs and no infection of the fauces. The next day they were better and taking food, but the elder child was feeble and wanted to lie down when she was dressed. They went home in the afternoon, and I am told that the cough in the younger child continued for three or four days. They ultimately got quite well.

No. 3 spirit was being used in the car, the exhaust pipe of which only reached half-way to the bottom of the car. What was the gas which caused these symptoms? Does No. 3 spirit contain benzol, which, I believe, contains toluol and xylol? Was it a case of toluol poisoning?—I am, Sir, yours faithfully,

Lichfield, Staffordshire. GEORGE W. HOMAN.

*** Cases of serious disturbance to health by the inhalation of light hydrocarbons, used as propellants of motor vehicles, are well known, but the above letter raises the question whether, in the circumstances described, the poisoning was due to leakage of hydrocarbons or to the products of their complete or incomplete combustion. The symptoms described are in accord with those produced by benzene inhalation (or petrol itself), and toluene vapours (methyl-benzene) act much in the same way as benzene. References to similar occurrences will be found in issues of THE LANCET dated April 5th, 1913 (p. 975), Jan. 27th, 1917 (p. 161), and Oct. 12th, 1918 (p. 494).—ED. L.

THE "TOXICITY" OF METHYLENE-BLUE.

To the Editor of THE LANCET.

SIR,—In your issue of Feb. 17th, 1917, you were good enough to insert a short letter on the above subject. Since then, while employed as consultant in malaria for the Scottish Command, I have been able to make more extended researches on the value of this remedy in the treatment of malaria and other affections, and also especially to note the presence or absence of toxic symptoms.

The total quantity of methylene-blue used in one hospital alone (the Edinburgh War Hospital, Bangour) amounted to over two pounds in weight, representing about 5000 doses of 3 gr. each. The number of malaria cases treated numbered over 3000. It may therefore justly be claimed that conclusions reached from observations on such a wide base are worthy of consideration.

I wish to combat the idea that methylene-blue possesses toxic properties, and the following few facts regarding the results obtained by its use may be of interest; a fuller statement on these points will be published later.

The drug was chiefly used in the treatment of malaria and flagellate infections of the intestine. In acute malarial attacks it was found that though in many cases favourable results were obtained, the efficacy of methylene-blue in cutting short attacks was distinctly inferior to quinine. On the other hand, it frequently proved a valuable remedy in preventing relapses, especially in cases where quinine, administered by the mouth or by intramuscular and intravenous injections, had signally failed.

The results obtained in flagellate infections were fairly good, though often unsatisfactory.

Regarding "toxicity," although some of the patients received over 400 gr. in a course of treatment extending over several weeks, beyond occasional complaints of slight bladder irritation no troublesome symptoms were manifested which could be attributed to the use of the drug. It may therefore be accepted that in methylene-blue we possess a remedy of great value; and that, provided a pure supply is obtainable, it may be freely used without fear of "toxic" symptoms resulting. I am, Sir, yours faithfully,

Edinburgh, June 10th, 1920. D. G. MARSHALL.

THE SURGICAL TREATMENT OF PROLAPSE OF THE UTERUS AND VAGINA.

To the Editor of THE LANCET.

SIR,—I do not think it is my business to attempt to disperse the fog that enshrouds the thoughts and impressions of Mr. R. H. Paramore. That he lacks lucidity and is, therefore, unsuited to teach was amply manifest in his first letter. I ask you to imagine, Sir, a medical student endeavouring to understand and assimilate what, no doubt, Mr. Paramore considered words of wisdom. Several intelligent practitioners have assured me that they obtained no glimmering of light after reading his letter through more than once. I have never before myself been accused of nebulosity, and on the present occasion Mr. Paramore would have been well advised if he had avoided the cheap form of argument that is abhorred by every school-boy. However, my only concern in taking notice of his first letter was to prevent those who might read his remarks imagining that the statements concerning myself were correct, for, as Mr. Paramore says, criticism in THE LANCET receives wide publicity.

It is necessary for me once more to controvert the intentional inaccuracies of Mr. Paramore, who, in spite of being exposed for similar inaccuracies in his first letter, in your issue of June 12th, not only attributes to me more views and statements I have never held or made, but also makes two definite aspersions: one is that I do not know the meaning of the word "floor": the second implies that I do not understand the significance of the adjective "congenital." I am afraid I must ignore any further puerile insinuations of this sort until I have some evidence that Mr. Paramore has taken the trouble to read my book, "The Principles of Gynæcology," third edition, if the abstract of my lecture in THE LANCET, which should be read as stated in conjunction with this work, does not make everything clear to him. In my book he will discover the term "congenital" qualified on p. 212 and elsewhere, as it was qualified in my lecture, and he will find the pelvic floor discussed on p. 47, and in my lecture I described, for want of a better name, as I stated definitely at the time, an operation for "the reconstruction of the posterior segment of *the peritoneal aspect* of the pelvic floor"—indeed, I asked for a better description of the procedure.

We must have lucidity and honesty, and until we get them there will be much diverse teaching in regard to the surgical treatment of prolapse, which, after all, was the subject of my lecture. Had Mr. Paramore heard some of the remarks I have heard from doctors and patients regarding so-called cures for prolapse he would have realised that facts and figures *are* important. (Honesty may be assumed until the contrary has been proved, in accordance with British traditions of justice.) Moreover, good operations are the result of good reasoning, whatever may be Mr. Paramore's subsequent interpretations of them, and technique is of considerable importance. In my lecture I was speaking to a large

number of surgeons of experience who could correctly interpret the reasons for my adopting the procedures advocated without my treating my audience to a discourse on elementary anatomy. I have, consequently, suggested that Mr. Paramore should publish his own figures and methods, if he has any worthy of publication. In regard to figures there is a general idea that Mr. Paramore has himself done comparatively few operations for prolapse, and this is supported by his statement that he has performed only twice the interposition operation, although he approves of it. If this idea be erroneous it would be well for him to dispel it. As to methods, if Mr. Paramore has any new procedure why is he so secretive about it? I must leave your readers to draw their own conclusions. Meanwhile, it is surely a little presumptuous of Mr. Paramore to attempt to interpret procedures thought out and introduced by others, some of which he has never seen and concerning the object of which he has not even troubled to inquire.

I am afraid I have written plainly: it is time someone did. Critics who adopt the methods to which I have referred must be checked. Even abuse is much preferable to perversions of one's views and statements.

I am, Sir, yours faithfully,

Liverpool, June 13th, 1920. W. BLAIR BELL.

THE IMPORTANCE OF IMMEDIATE SELF-DISINFECTION.

To the Editor of THE LANCET.

SIR,—Neither Lord Willoughby de Broke nor the society over which he presides believes that the establishment of disinfectant centres would be of much value in reducing venereal disease, and during his speech on June 3rd Lord Willoughby de Broke brought forward powerful arguments against the practicability of ablution centres. By inference the report in your issue of June 12th suggests that Lord Willoughby de Broke is in favour of the establishment of disinfectant centres, which is not the case, and I write lest a misunderstanding may arise as to the aims and objects of this society, which are to instruct the public as to (*a*) the vital importance of self-disinfection at the time of exposure to risk as a preventive of venereal disease, and (*b*) the methods of application.

I am, Sir, yours faithfully,

H. WANSEY BAYLY,

Hon. Sec., Society for the Prevention of Venereal Disease.
143, Harley-street, W. 1, June 12th, 1920.

AGE AND VENEREAL INFECTION.

To the Editor of THE LANCET.

SIR,—At the instigation of Colonel L. W. Harrison last year I made a private inquiry into the sex-history of 600 consecutive V.D. cases, chiefly with a view to determining the infection exposure ratio; this worked out at 1:15·6. Dr. G. G. Johnstone observes in THE LANCET of June 12th that there is a sharply defined maximum at the age of 18, when illicit coitus begins. I found that 469 out of the above series of 600 stated that their first sexual intercourse took place between the ages of 17 and 21. It is an important sociological fact, hardly needing to be proved by statistics, that normal sexual man is most prone to indulge in pseudo-romance during the latter period of exuberant adolescence, when ideals may be in a transition phase.

My predecessor, Captain W. Craik, in statistics carefully kept over a series of several thousand cases, found that 86 per cent. (I quote his figures from memory) were infected by "amateurs." Also, that 24 per cent. of the men were teetotallers and few claimed to be drunk at the time.—I am, Sir, yours faithfully,

JOHN DONALD, M.D., B.Sc., D.P.H.,
Major.

De Montfort-square, Leicester, June 13th, 1920.

PERIOD OF SERVICE FOR GRATUITY TO R.A.M.C. CAPTAINS.—A Royal Warrant states that captains of the R.A.M.C. who receive a permanent commission in this corps subsequent to May 25th, 1920, must complete eight and a half years total commissioned service in order to qualify for the gratuity of £1000 payable to retiring officers.

Medical News.

UNIVERSITY OF CAMBRIDGE.—The dates for the next examination for the Diploma of Psychological Medicine have been fixed as follows: for Part I., Oct. 13th, 14th, and 15th; for Part II., Dec. 1st, 2nd, and 3rd. The examination for Part I. will be held in Cambridge, that for Part II. in London. Courses of instruction for both parts will be held in Cambridge from July 19th to August 21st, and will include lectures and demonstrations. For Part I.: Dr. C. R. A. Thacker, Anatomy and Physiology of the Nervous System; Dr. J. P. Lowson, Psychology. For Part II.: Dr. E. Prideaux, Psychopathology; Dr. M. A. Archdale, Diagnosis, Prognosis, and Treatment of Mental Disorders. The fee for the full course is 10 guineas; the course for either part may be taken separately at a fee of 5 guineas. Entries should be sent to Dr. E. D. Adrian, Trinity College, Cambridge, from whom further information may be obtained.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—An ordinary meeting of the Council was held on June 10th at the College, Sir George Makins presiding. A report was read from the Board of Examiners in Anatomy and Physiology for the Fellowship stating that at the examination concluded on May 15th 168 candidates were examined, including 52 admitted under the special war conditions, of whom 38 were successful, and 116 admitted under the ordinary conditions, of whom 36 were successful.—A report was read from the Court of Examiners respecting candidates found qualified for the Diploma of Fellow, and diplomas were granted to 39 candidates mentioned in this report. The names will be published next week, as well as those of the candidates found qualified for the Licence in Dental Surgery.

The following were elected Members of the Board of Examiners in Anatomy and Physiology for the Fellowship for the ensuing year:—

Anatomy.—J. Ernest Frazer, F.R.C.S., W. F. Haslam, F.R.C.S., Gordon Taylor, O.B.E., F.R.C.S., A. Ralph Thompson, F.R.C.S.
Physiology.—F. A. Bainbridge, M.D., J. B. Leathes, M.D., H. W. Lyle, M.D., A. Rendle Short, M.D.

The following were elected Examiners under the Conjoint Examining Board in England for the ensuing year:—

Elementary Biology.—J. P. Hill, D.Sc., T. W. Shore, M.D.
Anatomy.—D. Hepburn, C.M.G., C.M. Edin., F. G. Parsons, F.R.C.S., Arthur Thomson, F.R.C.S.
Physiology.—G. A. Buckmaster, M.D., H. E. Roaf, M.D.
Midwifery.—J. S. Fairbairn, F.R.C.S., Cuthbert Lockyer, F.R.C.S., C. D. Robinson, M.D., G. F. Darwall Smith, F.R.C.S.
Public Health.—Sir F. W. Andrewes, M.D., F. N. Kay Menzies, M.D.
Tropical Medicine and Hygiene.—G. C. Lowe, M.D., H. B. G. Newham, M.D.

The President reported that the five surgeons who were elected honorary Fellows of the College on Feb. 12th last would attend to receive their diplomas on Thursday, July 8th next, and that it was proposed that the diplomas should be presented to them at 7.30 P.M. on the same day, and that they should afterwards be entertained to dinner in the College by the Council.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—At the monthly meeting of the Faculty, held on June 7th, the following were admitted (after examination) as Fellows:—

Norman Stewart Bruce, James Alphonsus Conway, John Norman Cruickshank, John Gracie, Stuart Spence Meighan, Joseph Hume Patterson, Daniel M'Kinlay Reid, William Robertson Snodgrass, Ian Dishart Suttie, and Gavin Young.

ROYAL COLLEGE OF SURGEONS IN IRELAND.—The annual election of President and Vice-President and Council of the Royal College of Surgeons in Ireland, held last week, resulted in the election of Mr. Edward H. Taylor, the outgoing Vice-President as President, and of Sir William I. de C. Wheeler as Vice-President. The latter was opposed by Mr. R. C. B. Maunsell, and considerable interest was taken in the contest. The new president, Mr. Edward Taylor, has been since 1916 Regius Professor of Surgery in the University of Dublin and has been for many years surgeon to Sir Patrick Dun's Hospital. Prior to his appointment as Regius professor he was for some ten years professor of surgery in Trinity College. He is the author of well-known text-books on Applied Anatomy and on Operative Surgery. Sir William Wheeler, who succeeds Mr. Taylor as vice-president, is surgeon to Mercer's Hospital and to the Orthopædic Centre for Pensioners. He was a consulting surgeon to H.M. Forces in Ireland during the war, and was recently awarded a knighthood in recognition of his services. He has contributed many surgical articles to the current literature, and he is a regular contributor to the *Medical Annual*.

LONDON MEDICAL EXHIBITION.—**The tenth exhibition** is arranged to be held in the Central Hall, Westminster, S.W., on Oct. 4th, 5th, 6th, 7th, and 8th next.

THE Cavendish Lecture will be delivered before the West London Medico-Chirurgical Society by Professor C. S. Sherrington on Friday next, June 25th, at 8.15 P.M., at the Kensington Town Hall. The subject taken is "Posture." The lecture will be preceded by a reception at 7.45 P.M. There will be medical and surgical exhibits.

ANATOMICAL SOCIETY OF GREAT BRITAIN AND IRELAND.—The annual summer meeting of this society will be held at Cambridge on Friday and Saturday, July 2nd and 3rd, following upon the meeting of the British Medical Association at the same place. The programme promises to be full of interest and importance. Several papers on the Morphology and Development of the Central Nervous System have been promised, while such themes as the "Structure of the Earliest Land Vertebrates," "Partial Transposition of the Mesogastric Viscera," and "Avian Structure as Bearing upon Problems of Bird Migration" will provide fertile fields for discussion.

ROYAL SOCIETY OF MEDICINE.—**The annual** election of officers and Council for the ensuing year will be held at the annual general meeting of Fellows at the Society's House on Wednesday, July 7th, at 5 P.M. The Council has nominated the following:—

As President: Sir John Bland-Sutton, F.R.C.S.
As Honorary Treasurers: William Pasteur, C.B., C.M.G., M.D.; C. H. Fagge, M.S.
As Honorary Librarians: Raymond Crawfurd, M.D.; Walter G. Spencer, M.S.
As Honorary Secretaries: A. M. H. Gray, C.B.E., M.D.; W. Girling Ball, F.R.C.S.
Other Members of Council: Lady Barrett, C.B.E., M.D.; J. Charlton Briscoe, M.D.; J. F. Gordon Dill, M.D.; John Fawcett, M.D.; J. Herbert Fisher, F.R.C.S.; Robert Hutchison, M.D.; Herbert S. Pendlebury, F.R.C.S.; Sir D'Arcy Power, K.B.E., F.R.C.S.; Guy E. M. Wood, M.D.

Section of Laryngology.

The second annual Summer Congress will be held at the Royal Society of Medicine, 1, Wimpole-street, London, W., on June 24th and 25th. An exhibition of pathological specimens and drawings will be held from 10 A.M. to 6 P.M. during the two days of the Congress, and there will also be an exhibition of surgical instruments and drugs from 2 P.M. on the 24th to 1 P.M. on the 25th. On Thursday, June 24th, at 2.30 P.M., a series of papers on cancer of the throat will be read by Sir Charters Symonds, Mr. Wilfred Trotter, Dr. Logan Turner, Mr. Edward D. D. Davis, and Sir StClair Thomson. On Friday, June 25th, at 10 A.M., miscellaneous communications will be given by various members, including Dr. A. Brown Kelly, Sir William Milligan, Dr. Watson-Williams, Mr. Lawson Whale, Dr. Irwin Moore, and Mr. W. M. Mollison. At the afternoon session demonstrations will be given by Dr. Llewelyn Powell, Dr. Felix Rood, Dr. F. E. Shipway, Dr. H. E. G. Boyle, Dr. E. P. Cumberbatch, Mr. Hayward Pinch, Mr. Layton, Mr. Norman Patterson, and Dr. Irwin Moore. On the first day of the meeting a dinner will be held at the Café Royal at 7.30 P.M. Applications for tickets (12*s.* 6*d.*) should reach one of the secretaries, Dr. Irwin Moore, 30A, Wimpole-street, W.1, or Charles W. Hope, 22, Queen Anne-street, W.1, not later than Monday, June 21st.

THE TREATMENT OF TUBERCULOSIS IN BELFAST.—Dr. A. Trimble, as medical adviser to the Belfast Insurance Committee, has just presented his report dealing with the year 1919. The death-rate from pulmonary tuberculosis in Belfast, which was 2·7 per 1000 in 1918, has fallen to 2·1 in 1919. Of the total of 2377 persons examined 887 (37 per cent.), were insured and exempt persons examined on behalf of the Committee, the remainder, 1490 (62·7 per cent.) being non-insured persons examined under the corporation scheme. Of those examined, 8 per cent. were found to be tuberculous or suspect. Dr. Trimble says that while the large number of females employed industrially in Belfast accounts in some measure for the high tuberculosis mortality amongst them as compared with females in large English towns, yet the higher rate of tuberculosis amongst females in the rest of Ireland over the rate amongst males requires some other explanation. As to sanatorium treatment, he thinks it is the best form of treatment in the incipient state of the disease, "but the continuance of improvement largely depends on the patient after leaving the sanatorium attending the dispensary for further treatment," for in advanced cases the sanatorium method can only mitigate the suffering of the patient. Of 1840 new cases treated, 24 were "apparently cured," while in 100 the disease was "quiescent," 178 were greatly improved, 791 improved, 630 in statu quo, and 117 worse. Reference is made to the serious effect of overcrowding owing to the housing problem. The report is, in existing circumstances, depressing.

MIDDLESEX PANEL COMMITTEE: PRESENTATION TO DR. H. B. BRACKENBURY.—At the monthly meeting of the Middlesex Panel Committee on June 10th Dr. Brackenbury, who has acted as chairman of the Committee since its inception in 1914, was presented by the members of the Committee with a solid silver coffee pot, sugar bowl, and cream jug. The presentation was made by Dr. C. F. T. Scott, vice-chairman of the Committee, in a felicitous speech in which he attributed the success of the Committee to Dr. Brackenbury's able chairmanship and statesmanlike qualities. Dr. Brackenbury, who was enthusiastically received, thanked the Committee for their kindness, stating that in all his public work he had been governed by the desire to serve the best interests of his fellow insurance practitioners and to promote the public welfare.

Reference was made in the course of the proceedings to the fact that Dr. Brackenbury has been chosen as Liberal candidate for East Walthamstow.

PROPOSED AMALGAMATION OF BRISTOL HOSPITALS.—At a meeting of the governors of the Bristol General Hospital, held on June 14th, it was decided to continue the discussion of the scheme of hospital amalgamation that has been proposed. This scheme already has the support of several of the Bristol institutions, but it is held by the committee of the General Hospital to need considerable modification if their institution is to enter the proposed amalgamation.

DEATH OF DR. FRANCIS MCLAUGHLIN.—**The death** is announced of a leading Londonderry medical practitioner, Dr. Francis McLaughlin, which occurred at his residence in that city on June 9th from pneumonia, contracted, it is believed, from a chill during a long drive to see a patient. The deceased, who studied in Queen's College, Galway, where he was a scholar, graduated M.D. with honours in the Royal University of Ireland in 1881. Starting practice in Londonderry, he soon acquired a large clientèle, and was extremely popular with all classes. He was a J.P. for the city of Londonderry, where, on the morning of his decease (so little was his death anticipated), the recorder appointed him as medical referee in a compensation claim.

MANCHESTER SCHOOLS FOR MOTHERS.—**The annual** report of the Manchester group of "schools for mothers" has recently been issued. The average number of children attending the various welfare centres each week was 1440, as compared with 980 in 1918 and 803 in 1917. During the year two new centres with antenatal clinics were formed by the Public Health Department. The experience of infant welfare centres has shown clearly that unguided instinct can no longer be regarded as the only requisite for the successful rearing of children, and consequently schools for mothers have been established in various centres. The mothers are taught how to promote the comfort of their children in the matter of suitable food, clothing, and general hygiene. A considerable part of the expenses of the schools for mothers is borne by the corporation, through the association of these schools with the Public Health Department, but even with this assistance the cost is not being met, and additional public support is required.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE.—His Majesty the King has been graciously pleased to command that the Society of Tropical Medicine and Hygiene shall henceforth be known as "The Royal Society of Tropical Medicine and Hygiene." The formation of a society to promote the study of the diseases and hygiene of warm climates was considered by a number of interested persons in January, 1907, at a meeting at the Colonial Office. In due course the society was constituted, with Sir Patrick Manson as President and Major Ronald Ross as Vice-President. The first ordinary meeting was held in June, 1907, and since that date, except during and subsequent to the war when the number of meetings was reduced, eight meetings have been held yearly and 13 volumes of Transactions have been published. The meetings have been well attended, the number of Fellows present rarely falling below 50; and on these occasions Fellows and their friends have the opportunity of exchanging views with workers from all parts of the world. At the end of the first year there were 186 Fellows, and the number is now 660. In the last 12 months 175 Fellows have been elected. From the first the society has been open to all persons interested in its objects, whether medical men or not, who are approved by the Council, and many veterinary practitioners are included amongst its Fellows. The Presidents in succession to Sir Patrick Manson have been Sir Ronald Ross, Sir William Leishman, Sir Havelock Charles, the late Dr. F. M. Sandwith, and Sir David Bruce. The President is now Professor W. J. Simpson. The subscription to the society is 1 guinea, but a rise to 1½ guineas is under consideration. The society's headquarters are at 11, Chandos-street, Cavendish-square, London, W.

A Royal Charter has been granted to the Incorporated Society of Trained Masseuses.

OPHTHALMIA NEONATORUM IN BOMBAY.—The Blind Relief Association of Bombay is embarking upon a propaganda campaign for reducing the incidence of infantile ophthalmia. It has published a pamphlet describing preventive measures to be taken immediately on the birth of a child. Help in carrying out the precautions is to be obtained from existing local bodies, such as the Sanitary Association and the Health Visitors and Infant Welfare Committee.

NORTH-EAST LONDON POST-GRADUATE COLLEGE: VACATION COURSE.—A special post-graduate course will be held at the Prince of Wales's General Hospital, Tottenham, N., from Monday, July 19th, to Saturday, July 31st, inclusive. It will comprise morning demonstrations on clinical methods, including laboratory methods of the examination of cases, and in the afternoons demonstrations on groups of illustrative cases, general hospital practice in the various departments, and clinical lectures and consultations. On Saturday morning clinical demonstrations will be given in affiliated special hospitals. The fee for the course is 3 guineas, or 2 guineas for either week. Further particulars, with syllabus as soon as it is ready, may be obtained from the Dean, at the hospital, or at 19a, Cavendish-square, W.1.

Parliamentary Intelligence.

HOUSE OF LORDS.

THURSDAY, JUNE 10TH.

The Census Bill.

Viscount ASTOR, in moving the second reading of the Census Bill, said that hitherto a separate Act of Parliament had been passed for each census. It was proposed that this Bill should be a perpetual Census Bill, empowering His Majesty from time to time, by Order in Council, to direct that a census should be taken for Great Britain or for any part of Great Britain. Power was taken to make a census every five years instead of every ten years, so as to secure greater accuracy for the fundamental figures as to population. By Clause 6 it was provided that a local census might be made subject to the approval of the Ministry of Health.—The Bill was read a second time.

HOUSE OF COMMONS.

WEDNESDAY, JUNE 9TH.

New Indian Army Pension Rates.

Mr. AUBREY HERBERT asked the Secretary for India whether, in view of the anxiety and uncertainty in the minds of many Indian Army officers who were contemplating retiring owing to the changed conditions of service in India, but could not do so until the new pension rates were published, he could now state when these rates would be published.—Lieutenant-Colonel ASSHETON POWNALL asked the Secretary for India whether the new scale of pensions for retired officers of the Indian Army had yet been approved.—Mr. MONTAGU replied: A communique giving particulars of the new scale of pensions for officers of the Indian Army and Indian Medical Service was sent to the press on June 3rd and published the following day.

Extra Nourishment for Tuberculous Persons.

Mr. CHARLES EDWARDS asked the Minister of Health whether local War Pensions Committees were authorised to make provision for extra nourishment for ex-Service men in sanatoriums or at home who were suffering from tuberculosis and in need of special diet, and if he would make provision for similar grants to be made to insured persons who were suffering from the same cause.—Dr. ADDISON replied: I understand that this provision is made in the case of ex-Service men suffering from tuberculosis who are under treatment at home, and Insurance Committees are empowered to make similar provision for other insured persons so far as the funds available for sanatorium benefit, after providing for other calls upon these funds, will allow. The question of providing "extra" nourishment for patients under treatment in sanatoriums is one which scarcely arises in practice. These patients receive the dietary provided by the institution, which is specially adapted to the needs of tuberculous patients and may be varied at the discretion of the medical superintendent to meet the special needs of individual cases.

Poor-law Officers and Reform of the Poor-law.

Mr. BRIANT asked the Minister of Health if he would withhold his assent to any scheme of a board of guardians for the reorganisation of its institutions or services prior to the introduction of a measure dealing with the Poor-law system as a whole until he was satisfied that amicable arrangements had been made with the officers concerned; and if, in the event of Poor-law officers suffering monetary loss owing to a transfer of a portion of their duties to other authorities or offices, he would satisfy himself that the guardians had made adequate compensation for such loss as might be sustained by them.—Dr. ADDISON replied: It is already the practice to give full consideration to the position of any officers affected by a reorganisation of services.

Dental Legislation.

Mr. RAFFAN asked the Minister of Health if he could now state when it was proposed to introduce legislation for the purpose of carrying out the recommendations of the Select Committee on the Dentists Act, 1878.—Lieutenant-Colonel HURST asked the Minister of Health whether he was now able to make a statement as to the prospects of legislation this session in respect of the registration of dentists and dental practitioners.—Dr. ADDISON replied: I regret that, owing to the pressure of other legislation, the draft of this Bill is not yet completed, and I am unable to say when it will be introduced, though I hope it will be ready shortly.

Elimination of Slum Areas.

Mr. L'ESTRANGE MALONE asked the Minister of Health whether the powers given to local authorities under the Housing and Town-planning Act were sufficient to enable them to eliminate slum areas; and, if so, what steps were being taken to enforce these provisions.—Dr. ADDISON replied: I think that the powers under the Housing Acts are generally sufficient; but, as the honourable Member will appreciate, it is scarcely practicable to deal on a large scale with slum areas, or to undertake the demolition of houses, until much more has been done to meet the prevailing shortage of houses. Local authorities have been requested to proceed with the survey of the unhealthy areas in their districts and with the preparation of schemes in the most urgent cases. I will send the honourable Member a copy of the manual on the subject which has been issued.

Mr. MALONE asked the Minister of Health if he would state the extent of the slum areas, given in acreage, number of houses or number of rooms, which had been condemned as unfit for habitation since the creation of the Ministry of Health; the number of occupants so affected; and the numbers for whom new accommodation had been erected.—Dr. ADDISON replied: Since the creation of the Ministry of Health local authorities have submitted for confirmation improvement schemes for areas comprising 10½ acres and 494 houses, occupied by 2938 persons of the working classes. New housing accommodation is proposed to be provided in connexion with these schemes for 2820 persons. These schemes are now being considered by my Department.—Mr. RAFFAN: Have any of these schemes been confirmed?—Dr. ADDISON: Several of them are being confirmed, but I cannot say how many. We do not propose to deal with them until more of the existing shortage is dealt with.—Mr. MALONE: Is not an acreage of 10½ a very small percentage indeed of the slum areas of our industrial towns?—Dr. ADDISON: Of course it is, but schemes which are before us relate to vast areas of our slums. We cannot confirm orders until there is some prospect of sufficient additional accommodation to justify the demolition of these houses. We must do these things by stages.

Treatment Allowances of Disabled Men.

Mr. ALFRED DAVIES asked the Minister of Pensions whether treatment allowances could be withdrawn from a disabled man who, owing to his disability, was unable to follow his present occupation, and who was receiving out-patient treatment but was certified fit for easy light work, or whether he was entitled to receive full-treatment allowances pending his return to his own employment.—Major TRYON (Parliamentary Secretary to the Ministry of Pensions) replied: For cases of out-patient treatment special provision is made by Article 6 of the Royal Warrant in the form of an allowance for loss of remunerative time. Full allowances at the maximum rate of pension (to which the honourable Member appears to refer) are only payable where a pensioner who is certified to need a course of treatment is judged to be unable in consequence to provide for his own support and that of his family. The question whether in any given case the time occupied in or other circumstances attending the course of treatment prescribed are such as to entitle the man to the maximum allowances must be decided on the facts of the case.

Medical Men and Motor-car Rebate.

Mr. RAMSDEN asked the Chancellor of the Exchequer whether, in the event of any rebate being granted to medical men whose work necessitates them running a motor-car, the same privilege will be extended to county coroners.—Mr. NEAL (Parliamentary Secretary to the Ministry of Transport) replied: As I stated on June 3rd, the Minister of Transport is unable to recommend a rebate of the proposed taxation of motor vehicles in the case of those used by medical practitioners.

THURSDAY, JUNE 10TH.

DANGEROUS DRUGS BILL.

Major BAIRD (Under Secretary to the Home Office), in moving the second reading of the Dangerous Drugs Bill, said that it gave effect to the International Opium Convention, signed at The Hague on Jan. 23rd, 1912. The purpose of the Convention was to bring under control throughout the world the traffic in opium and cocaine, and preparations derived from them, and to restrict their use to medical and other legitimate purposes. The Convention was signed on behalf of all the Powers represented, with the exception of Turkey and Serbia. Some of the countries, including Germany, failed to ratify the Convention before the outbreak of war, and it was never brought into operation. During the war Great Britain found it necessary to take action on her own account owing firstly to the spread of the cocaine habit, and secondly to the extensive smuggling of opium carried on in the East, which caused trouble and delay to our merchant shipping in connexion with China. Therefore, a Regulation, No. 40B, was made under the Defence of the Realm Act, which enabled them to control the manufacture, sale, and distribution of cocaine; and a proclamation was issued, under the Customs Consolidation Act, to prohibit the import of cocaine or opium except under license of the Secretary of State. Those measures did not prove altogether successful, largely owing to the difficulty of controlling smuggling in the case of an article which could be brought in in such small quantities and so easily sold as opium. They believed that the only effective control would come by international coöperation. The Allied Powers attached so much importance to this question that the ratification of the International Convention was made one of the conditions of peace and was embodied in Article 295 of the Peace Treaty, which bound the contracting parties to bring the Convention into force and to enact the necessary legislation within 12 months of the coming into force of the Treaty. It became doubly important that they should have the power which this Bill would confer if it became an Act, because of the impending abrogation of the Defence of the Realm Regulations. The Bill was limited to carrying out the Convention except in one respect—namely, in Clause 8, Subsection (2), where powers were asked for to extend provisions not only to the derivatives of morphine and cocaine, but to any other alkaloid of opium, and any other drug of any kind which was likely to produce the same injurious effects. Another reason why they were anxious to have the powers which the Bill conferred upon them was that their representatives in China and Japan had repeatedly referred to the disastrous effects on the traffic which was being carried on with China in morphia and cocaine to a very large extent, and both China and Japan were signatories to the Convention.

Lieutenant-Commander KENWORTHY: When it is passed will this Bill be able to stop the whole of this great trade in morphia?—Major BAIRD said it was doubtful whether it would stop the whole of it, but the Bill embodied the best means which commended themselves to those who represented these 42 Powers at the International Convention, and it represented the results of their labours and their recommendations. It might not be perfect, but it was a great step in advance, and they hoped that if they got these powers they would be able largely to assist our Allies in Japan and our friends in China to deal with this very important and pernicious matter. Naturally, a big measure of this kind affected the interests of large bodies of their fellow countrymen, and the Pharmaceutical Society had made representations. Both with regard to their representations and others which they had had from the wholesale dealers they hoped to be able to meet them. As regarded the Pharmaceutical Society, they had already had an opportunity of considering the points which they advanced, and with one exception he hoped in Committee it would be possible to accept amendments which would meet their views. As regarded the wholesale dealers, they expressed a desire to put their views before the Home Secretary, but only so recently as a day or two ago, and therefore it had not been possible to meet them and discuss the question, but with regard to both these important bodies they were most ready to listen to any representations which would enable them to devise some amendments which would alleviate any legitimate hardships without weakening the force of the measure to which they attached very great importance. The details of the Bill were of a very technical character. Everyone was imbued with the desire to restrict the misuse of this most valuable drug and to collaborate with other countries in reducing its uses to legitimate and proper preparations, and seeing that the Bill embodies the recommendations of this very competent body of men, representative of practically all the nations who assembled at The Hague in 1912, he hoped the House would be content to give them the second reading without prolonged discussion.

The International Aspect.

Dr. D. MURRAY congratulated the Home Secretary on taking up the international aspect of this question. The history of this country in connexion with the drug habit all over the world and in connexion with the opium traffic had been one of the most disgraceful pages in our history, and one which we could never look back upon without a sense of shame. It was a hopeful augury for the League of Nations to see the Government associating themselves with other nations in such a humane Bill, and although on the surface the provisions made for the international aspect did not appear very drastic, still he hoped they would be more effective than they appeared to be. The drug habit was a matter which was well worth the attention of the Government, and he was glad they were beginning to take notice of this great evil in the social structure of our country. It was a growing evil and seemed to grow *pari passu* with certain types of civilisation. There was not much of it in our country districts; as a rule these habits were learned, developed, and practised in towns, and especially the bigger ones. The Government had selected, perhaps, the principal drugs that were used—opium and its derivatives, morphia and cocaine. The manner in which the Government proposed to attack the drug habit was quite on the right lines, and with one or two slight modifications he saw no reason why they should not have their Bill. He did not know what the references to medical men and dispensers exactly meant. Very often the excuse given by people who were victims of the drug habit was that the doctor prescribed it for them for certain ailments, and, unfortunately, after the immediate need for it had passed the patient, finding the effects of it pleasant, continued it until he became a victim and could not get rid of it. He presumed what was meant by one of the clauses giving power to the Home Secretary for "regulating the issue by medical practitioners of prescriptions containing any such drug and the dispensing of any such drugs," was that a chemist who dispensed a prescription containing any of these drugs would not be allowed to dispense it without a renewed prescription being given by the doctor. He did not know how many times a doctor might allow it to be dispensed without the renewed authority, but there should be some limit to that practice, otherwise they might go on taking the drug for a long time. He had often heard people who were addicted even to drink say that their doctor advised them to take some, as St. Paul said, for the stomach's sake, or for some other medical purpose. That was unfair to the doctors. There was one thing on which he would be inclined to blame some of his medical brethren in connexion with the drug habit, and that was the habit of taking medicated wines among women. He wished the Home Secretary had taken power to abolish medicated wine. If a doctor wanted to prescribe wine let him prescribe good honest port, or something of that kind, without it being mixed up with drugs. There was nothing that produced more drinking among women than medicated wines. With regard to the question of keeping books of all the drugs that were sent out, he hoped that any regulation that was adopted in regard to dispensing or prescribing, or in regard to the necessary book work in connexion with drugs would be framed in consultation with the representatives of the medical profession and of the pharmaceutical profession. Otherwise they might be drawn by somebody who might produce harm without giving the results required. For an offence against this Act a fine of £200 could be imposed, and he would draw attention on this point to the question of alcoholic poisoning. There were many thousands of deaths from that cause every year. The question of penalty ought to be very carefully considered before the penalties were finally adopted.

Mr. WOOLCOCK, who said he was the only person in that House who held a pharmaceutical certificate, and had acted for some years as secretary of the Pharmaceutical Society, welcomed from his experience the principal object of the Bill. He called attention particularly to Clause 7 of the Bill, paragraph B, which prohibited "the manufacture, sale, or distribution of any such drugs, except by persons licensed or otherwise authorised under the regulations." The effect of that might be that a Government Department would be able to supersede by regulations the important provisions of the Poisons and Pharmacy Act. He suggested that the Government might give them an assurance in regard to two or three important matters when the time came. The regulations to be made in under this Bill should be in addition to, and not in substitution of, the provisions of the Pharmacy Act and the Poisons and Pharmacy Act. He asked also for a promise on the Committee stage that a pharmacist who carried on business as a chemist should have the right to dispense and retail substances provided for under this Bill. The Government ought to assure the House that anyone who was charged with an offence under the Bill should have an appeal to some court.

Impracticable Regulations Obviated.

Captain ELLIOT said that they were very grateful to the Home Office for Clause 11, which provided that Regulations should be laid before Parliament which would have the power of considering them and of annulling them if necessary. That would help to avoid any fear that some committee of officials

would draw up impracticable regulations. It was interesting to think that this Bill was being brought in primarily for an evil spreading, he thought, more from the United States than from any other country. That country was the great temperance country at the moment. It was a strange and noteworthy thing that alcoholism was in many ways simply the expression of a nervous weakness in the patient. If they tried to stamp out alcoholism by pure prohibition measures they drove the weak man from one form of drug to another form of drug. The fact that such a Bill as this was necessary was a very striking commentary on the trend of some of our legislation. Other countries that had managed to get rid of alcoholism had found that some other vice had taken its place. It tended to show that they should think twice and thrice before interfering with the long-established habits of the human race, especially of the Western races which had been accustomed to use alcohol in moderation. The American people had gone in for prohibition and had developed the drug habit to an extent altogether unknown in this country. It might be simply a coincidence, but the death-rate from delirium tremens had gone up some 300 per cent. In many cases the nervous diathesis resulted in a trend either towards alcohol or some other drug, and if alcohol was prohibited then the other drug, which was much more fatal, was resorted to in its place. He thought all medical men in the House and in the country would like to draw the attention of the Government to the necessity for dealing with patent medicines. He begged the Home Office to confer with the Ministry of Health and to disinter the valuable Report of a Committee of that House which sat before the war on the subject of patent medicines, and to introduce legislation along the lines recommended. Various great evils had occurred from people using these drugs under conditions which no medical man or chemist would dare to prescribe. As to the Bill before the House, they hoped that it was only the beginning of international work for dealing with health problems as a whole. The microbe knew no frontier, and disease was not limited to any kind of national flag.

The Bill was read a second time.

Coroners' Verdicts in Ireland.

Colonel Sir ALEXANDER SPROT asked the Chief Secretary to the Lord Lieutenant of Ireland whether his attention had been directed to the evidence given on May 27th before the coroner's jury which inquired into the death of James Dalton at Limerick on May 15th last; whether Joseph Dalton, a brother of the deceased, gave evidence that he was present at a Dail Eireann inquiry into allegations against James Dalton of having relations with the police, and produced a document which was called Dail Eireann official verdict in the case of James Dalton; whether the coroner accepted this document and handed it to the jury for their consideration; and whether it was proposed that the verdicts of illegal courts should be accepted by officials of the Government sitting in a judicial capacity and treated as material evidence for the consideration of the jury.—Mr. HENRY (Attorney General for Ireland) replied: The answer to the first part of the question is in the affirmative. It appears that a brother of the deceased man produced a document to the effect mentioned in the question, which was read. The coroner is not an official of the Government, and the document in question was at once seized by the district inspector.—Sir J. BUTCHER: Is there no control by the Government over the proceedings of coroners' courts?—Mr. HENRY: The coroner sits in a judicial capacity and is entitled to decide what documents he will receive or refuse to receive in evidence.—Captain WEDGWOOD BENN: Does the Government assume any responsibility in connexion with the verdicts brought in by coroners' courts?—Mr. HENRY: That depends entirely upon the verdict.

Women, Young Persons, and Children (Employment) Bill.

Major BAIRD moved the second reading of the Women, Young Persons, and Children (Employment) Bill, the object of which, he explained, was to enact the necessary legislation to enable effect to be given to the Conventions which were agreed to at the recent International Labour Conference at Washington. Clause 2 was not part of the Convention. It asked the House to sanction the continuance of conditions which had been adopted during the war, under which women had been employed who could not have been employed under the Factory Acts. Under those Acts the day ended at 8; the two-shift system had the two-fold result of finding employment for something like 25,000 women and rather over 5000 young persons, with the accompanying increase in production and of work in the dependent industries.—Lieutenant-Colonel FREMANTLE entered a protest against Clause 2 from the point of view of public health. If they were going to permit the employment of women in the factories up to 10 in the evening that would be a constant trouble in trying to get back any kind of home life, which was at the bottom of healthy homes. They wanted to go against any legislation that tended further to break up family life. It was totally unnatural for women to be employed night and day in the factories.—Major BAIRD suggested that the House might give a second reading to the Bill, and if the Government was unable to remove by its arguments the strong opposition to Clause 2 it was clear that that clause could not stand.—The Bill was read a second time.

FRIDAY, JUNE 11TH.

Veterinary Surgeons Act Amendment Bill.

The Veterinary Surgeons Act (1881) Amendment Bill was read a third time.

The Health Resorts and Watering Places Bill.

The Health Resorts and Watering Places Bill was read a third time.

MONDAY, JUNE 14TH.

Insanitary Areas.

Mr. MYERS asked the Minister of Health if he would state the number of separate areas upon which representations had been made by medical officers of health declaring such areas insanitary areas under the provisions of the Housing, Town Planning, &c., Act, 1909, which were in the hands of the Local Government Board in August, 1914, and upon which no action had then been taken by the local authorities concerned, the number of houses and the population involved in these representations, and the extent to which improvement schemes under the provisions of the Act had since been carried out; and in how many cases these insanitary areas still remained and the extent to which the houses affected were still occupied.—Dr. ADDISON replied: There were three such areas comprising 890 houses, occupied by 4387 persons. A local inquiry was held in each of these cases. In two cases the local authorities were called upon to make improvement schemes, but proceedings had to be deferred owing to the war. A scheme in regard to one of the areas has now been submitted to me, and a scheme in regard to another of them has been promised. The third case was one of a small area (comprising 47 occupied houses), for the greater part of which an improvement scheme had already been made and confirmed. The local authority were called upon to proceed to deal with the area, but action was interrupted by the war. I have asked for a report on the present position of the area.

Closing Orders.

Mr. MYERS asked the Minister of Health if he would state the number of dwelling-houses which were still occupied in respect of which closing orders, numbering 22,115, were made in 1913 and 1914 upon the representations of the medical officers of health in England and Wales; and if he would state whether, under the Increase of Rent and Mortgage Interests (Restrictions) Bill now before the House, it would be necessary for the tenants of these dwellings to secure an order from the county court judge to ensure them protection against the increased rent charges embodied in the Bill before the House.—Dr. ADDISON replied: I regret that I am unable to give the information asked for in the first part of the question. As regards the second part of the question under the proposals of the Bill the increases under paragraphs (*c*) (*d*) of Clause 2 (1) will not be chargeable if, on production of a certificate of the sanitary authority or otherwise, the court is satisfied that they should be suspended.

General Medical Council Bill.

The Direct Representatives of the General Medical Council Bill was read a second time.

TUESDAY, JUNE 15TH.

Unsuitable Artificial Limbs.

Captain LOSEBY asked the Minister of Pensions if he was aware that ex-soldiers who lost limbs during the recent war had in certain cases been supplied with unsuitable artificial limbs of an inferior quality; if he would state the policy of the Ministry in the matter; and if he would consider the advisability of issuing instructions that all artificial limbs supplied must be of the best quality procurable.—Major TRYON (Parliamentary Secretary to the Ministry of Pensions) replied: Every precaution is taken to see that only artificial limbs of the best quality are supplied. Every limb must be passed by the surgeon of the hospital, and periodical inspection is given by officers of the Ministry. In the event of any defect being subsequently found, readmission to a limb-fitting hospital is arranged on application being made through the appropriate Local War Pensions Committee, in order that the defect may be put right or a more suitable type of limb supplied.

Distribution of Artificial Limbs.

Major COHEN asked the Minister of Pensions if he would state how many soldiers who were suffering from the amputation of a leg had been provided with their second artificial limb; and how many such soldiers were still waiting for the said limb.—Major TRYON replied: A duplicate artificial leg has been supplied in 6362 cases. The number still to be supplied is 20,350.

The Services.

ROYAL ARMY MEDICAL CORPS.

Major H. G. Pinches relinquishes the temporary rank of Lieutenant-Colonel.

Capt. A. M. Pollard to be temporary Major whilst specially employed.

Capt. N. T. Whitehead is seconded for service with the Egyptian Army.

D. E. Carter, late temporary Honorary Captain, to be temporary Honorary Captain.

Officers relinquishing their commissions:—Temporary Majors retaining the rank of Major: H. W. A. Burke, J. Jenkins. Temporary Captains granted the rank of Major: E. Kidd, (Acting Major) J. McF. Donnan, J. Bamforth, P. P. J. Stewart. Temporary Captains retaining the rank of Captain: E. Reavley, A. H. Greg, J. Humphreys, G. G. Bruce, M. J. Houghton, L. H. Werden, B. N. Sinclair, P. R. Browning, G. W. Spencer, B. P. Allinson, E. S. Hall, E. C. Dutton, D. Fettes, O. Heath, J. D. G. Stewart, F. G. Smyth, T. L. Harrison, M. E. Willcock, A. H. Hall, J. Paterson, L. W. Howlett, C. R. B. Von Braun, J. G. Elder, G. J. Fraser, G. E. A. Petrie, H. V. Walsh. Temp. Lieut. E. J. Hynes (retains the rank of Lieutenant).

SPECIAL RESERVE OF OFFICERS.

Capt. T. P. Chapman relinquishes his commission and retains the rank of Captain.

Lieut. (temp. Capt.) N. R. Hathaway resigns his commission and is granted the rank of Captain.

TERRITORIAL FORCE.

Capt. G. L. Thornton to be Lieutenant-Colonel and to command 1st Wessex Field Ambulance.

Majors H. Waite and H. Halton resign their commissions and retain the rank of Major.

Capts. W. P. Ferguson and A. L. Sharpin resign their commissions and are granted the rank of Major.

Capts. R. C. S. Smith, R. J. Chapman, T. Allen, and L. Colebrook resign their commissions and retain the rank of Captain.

London University Contingent, Medical Unit: Capt. W. Wright relinquishes his commission and is granted the rank of Captain.

TERRITORIAL FORCE RESERVE.

Capt. C. C. Grummitt, from the General List, to be Captain.

ROYAL AIR FORCE.

Medical Branch.—Capts. J. S. Prendergast, F. H. Bowen, A. L. Robinson, S. H. DeG. Pritchard are transferred to the unemployed list.

Lieut. C. H. Vernon relinquishes his commission.

Dental Branch.—Capt. G. F. H. Bloom is transferred to the unemployed list.

DEATHS IN THE SERVICES.

Surg.-Gen. James Cleghorn, I.M.S. (retired), C.S.I., Honorary Surgeon to the King, at his residence, Weysprings, Haslemere, Surrey, on June 14th, aged 79. He entered the Indian Medical Service in 1865 and served with the Bhootan Expedition (medal and two clasps). In 1891 he was appointed Inspector-General of Civil Hospitals in the Punjab and four years later became Director-General and Sanitary Commissioner. He represented the Government of India at the Venice Plague Conference in 1897. On retirement he was appointed Honorary Surgeon to the Queen in 1898.

Lieut.-Col. John Lancaster, I.M.S. (retired), on June 9th, at a nursing home, Streatham, aged 71. He was for many years Chief District Medical Officer of Vellore, N. Arcot, President of the Board of Examiners of Madras Medical College, and Civil Surgeon to the Governor and Staff at Coonoor. After 35 years of service he retired owing to ill-health caused by devotion to duty in connexion with the plague and cholera camps. For his work he twice received the thanks of the Government.

BROUGHT TO NOTICE.

The names of the following medical officers are to be added to those already brought to notice for services rendered in the spheres of operations detailed. All are members of the R.A.M.C. except where otherwise stated:—

France.—Temp. Lt.-Col. C. S. Myers, C.B.E.; Capt. C. S. O'Neill, O.B.E.; Capt. R. W. A. Salmon, O.B.E.

East Africa.—Temp. Capt. W. G. Cobb, D.S.O.; Capt. H. L. Duke, O.B.E., Uganda Med. Serv.; Maj. (temp. Lt.-Col.) W. V. Field, O.B.E., S. Afr. M.C.; Capt. (acting Maj.) S. J. V. Furlong, O.B.E.; Temp. Lt.-Col. J. Grinsell, O.B.E., S. Afr. M.C.; Capt. (acting Lt.-Col.) J. D. Kidd, O.B.E., M.C.; Lt.-Col. R. Milner-Smyth, O.B.E., S. Afr. M.C.

India.—Capt. (temp. Maj.) A. F. Babonau, O.B.E., I.M.S.; Maj. and Bt. Lt.-Col. (temp. Col.) F. A. F. Barnado, C.I.E., C.B.E., I.M.S.; Temp. Capt. J. Cairns, O.B.E.; Capt. (temp. Maj.) F. R. Coppinger, O.B.E.; Temp. Capt. S. K. Engineer, O.B.E., I.M.S.; Maj. (temp. Lt.-Col.) J. K. S. Fleming, O.B.E., I.M.S.; Maj. G. D. Franklin, O.B.E., I.M.S.; Maj. A. T. Frost, O.B.E.; Capt. W. A. Frost, O.B.E.; Capt. T. B. Heaton, O.B.E.; Maj. D. P. Johnstone, O.B.E.; Maj. T. W. Minty, O.B.E., I.M.S.; Lt.-Col. P. St. C. More, O.B.E., I.M.S.; Maj. R. B. Nicholson, O.B.E., M.C., I.M.S.; Maj. H. W. Pierpoint, O.B.E., I.M.S.; Lt.-Col. J. J. W. Prescott, D.S.O., O.B.E.; Capt. C. H. Smith, O.B.E., I.M.S.; Capt. (temp. Maj.) J. R. D. Webb, O.B.E., I.M.S.; Temp. Lt.-Col. Raghabendra Row, O.B.E., I.M.S.

North Russia.—Capt. (acting Maj.) W. N. W. Kennedy, O.B.E.; Lt.-Col. T. McDermott, O.B.E.; Capt. J. Renwick, O.B.E.

Salonika.—Temp. Capt. (acting Maj.) F. R. Brown, O.B.E.; Capt. (acting Maj.) B. L. Davis, O.B.E.; Dr. (Miss) E. B. Hollway, O.B.E.; Dr. (Mrs.) A. M. Livingstone-Learmonth. C.B.E., attd. R.A.M.C.

Siberia.—Maj. F. J. Collings, O.B.E., Can. A.M.C.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

HOUGHTON, M. J., M.R.C.S., L.R.C.P. Lond., has been appointed Medical Referee under the Workmen's Compensation Act for County Court Circuit No. 43.

WYLIE, D. S., C.M.G., C.B.E., F.R.C.S., Inspector of Hospitals, Department of Public Health and Hospitals, New Zealand.

Great Northern Central Hospital: GORDON, E., M.B. Aberd., House Surgeon; and FINIGAN, F. O'C., L.D.S., Assistant to Dental Surgeon.

Certifying Surgeons under the Factory and Workshop Acts: REEVES, T. C., M.R.C.S. Eng., L.R.C.P. Lond. (Bollington); SMYTH, A. F., M.B., B.Ch. N.U.I. (Ballyhaunis).

Vacancies.

For further information refer to the advertisement columns.

Aylesbury, Royal Buckinghamshire Hospital.—H.S. £200.

Barnet, Wellhouse Hospital.—Res. Asst. Med. Supt. £250.

Barrow-in-Furness County Borough.—Asst. M.O.H. and Clin. Tuberc. Officer. £500.

Battersea General Hospital (Incorporated), Battersea Park, S.W.—Res. M.O. £200.

Belgrave Hospital for Children, Clapham-road, S.W.—H.S. £100.

Bermondsey Medical Mission.—Female Locum Tenens. £200.

Birmingham General Hospital.—H.S.'s and H.P. Also Res. Anæs. £100.

Bolton Infirmary and Dispensary.—Female Second H.S. £250.

Bradford Children's Hospital.—H.S. £200.

Bradford City.—Asst. Bacteriologist. £600.

Brighton, Hove and Preston Dispensary.—Res. M.O. £200.

Brighton, Royal Sussex County Hospital.—Jun. H.S. £130.

Bristol General Hospital.—Cas. H.S. £175.

Burnley, Victoria Hospital.—H.S. £250.

Bury County Borough.—Venereal Diseases Officer. 3 gs. a session.

Canning Town Women's Settlement Hospital, Balaam-street, Plaistow, E.—Female Hon. Asst. P. Also Female Res. M.O. £150.

Cardiff, King Edward VII. Hospital.—H.S. £200.

Cardiff, King Edward VII. Welsh National Memorial Association.—Asst. Tuberc. P.'s. £500.

Central London Throat and Ear Hospital, Gray's Inn-road.—Third Asst. S.

Chelsea Infirmary, S.W.—Second Asst. M.O. £325.

Chichester, Royal West Sussex Hospital.—H.S. £200.

City of London Maternity Hospital, City-road, E.C.—Res. M.O. £100.

Colchester, Essex County Hospital.—H.P. £200.

Coventry Education Committee.—School Dentists. £400.

Croydon County Borough.—Asst. M.O.H. and Asst. Sch. M.O. £500. Also Female Asst. M.O.H. for Maternity and Child Welfare Work. £500.

Doncaster Royal Infirmary and Dispensary.—Asst. H.S. £225.

Donnybrook, Dublin, Royal Hospital for Incurables.—Res. M.O. £200.

East Suffolk County Education Committee.—Dental Surgeon. £500. Asst. School M.O.'s. £500.

Elizabeth Garrett Anderson Hospital, Euston-road.—Female Sen. Asst. M.O. £200.

Federated Malay States.—Radiologist. £840-980.

Frimley, Brompton Hospital Sanatorium.—Asst. Res. M.O. £250.

General Lying-in Hospital, York-road, Lambeth, S.E.—Registrar.

Glasgow University.—Lectureship in Ophthalmology.

Gloucester County Asylum.—Jun. Asst. M.O. £300.

Gloucestershire Royal Infirmary and Eye Institution.—H.P. £175.

Gravesend Hospital.—H.S. £200.

Great Northern Central Hospital, Holloway, N.—Cas. O. £200.

Halifax Royal Infirmary.—Senior, Second, and Third H.S.'s. £350, £300, and £275 respectively.

Hospital for Consumption and Diseases of the Chest, Brompton, S.W.—Asst. Res. M.O. £150. Also H.P. 30 gs.

Hospital for Sick Children, Great Ormond-street, W.C.—Cas. M.O. £200. Also Med. Reg. and Path. £200.

Huddersfield Royal Infirmary.—Sen. H.S. £250.

Hull Royal Infirmary.—Asst. H.S. £150.

Huntingdonshire County Council.—Female Asst. County M.O and Asst. Sch. M.O. £500.

Italian Hospital.—H.S. £150.

Lancaster Royal Infirmary.—H.S.

Leamington Spa, Warneford, Leamington, and South Warwickshire General Hospital.—Res. H.P. £200.

Leeds City.—Female Asst. M.O. for Maternity and Child Welfare. £500.

Leeds City Tuberculosis Sanatorium.—Res. Asst. M.O. £300.

Leeds Public Dispensary.—Res. M.O. £200.

Leicester, City Mental Hospital, Humberstone.—Asst. M.O. £600.

Liverpool Stanley Hospital.—Res. P. and S. £150.

London County Council Hospital Service.—Sixth and Seventh Asst. M.O.'s. £300.

London Fever Hospital, Liverpool-road, Islington, N.—Res. Med. Supt. £400. Also Asst. Res. M.O. £200.

London Temperance Hospital, Hampstead-road, N.W.—Res. M.O. £200.

Manchester, Ancoats Hospital.—H.P. £150. Also Two Jun. H.S.'s. £100.

Manchester Royal Infirmary, Roby-street.—Second Res. M.O. £100. Also H.S.'s. £50 first six months, £100 second.

Margaret Street Hospital for Consumption, 26, Margaret-street, W.—Asst. Hon. P.
Middlesbrough Education Committee.—Sch. Dent. £400.
Middleton-in-Wharfedale Sanatorium, near Ilkley.—Asst. M.O. £500.
Miller General Hospital for South-East London, Greenwich, S.E.—Res. Cas. O. £150. Also H.S. £100. Also Orthopædic S. and Hon. P.
Ministry of Pensions Special Surgical Hospital, Shepherd's Bush, W.—Senior Part-time S.
National Dental Hospital, Great Portland-street, W.—Med. Supt. £250.
Newcastle-upon-Tyne Education Committee.—Asst. Sch. M.O. £500. Also Dental S. £400.
Newcastle-upon-Tyne, Hospital for Sick Children.—Sen. and Jun. Res. M.O.'s. £250 and £200 respectively.
Northampton General Hospital.—H.S. £200.
Nottingham City Asylum.—Second Asst. M.O. £400.
Prison Medical Service.—M.O.'s. £300.
Reading, Royal Berkshire Hospital.—H.S. £200.
Rochdale Infirmary and Dispensary.—Sen. H.S. £250.
Rotherham Hospital.—Jun. H.S. £150.
Royal Free Hospital, Gray's Inn-road, W.C.—Asst. S.'s.
Royal London Ophthalmic Hospital, City-road, E.C.—Refraction Asst. £100.
Royal Veterinary College, London, N.W.—Lecturer on Chemistry. £300.
Royal Westminster Ophthalmic Hospital, King William-street, West Strand, W.C.—Refractionist Assts. £100.
Ryde, Royal Isle of Wight County Hospital.—Res. M.O. £250.
St. Helens Education Committee.—Dentist. £450.
St. Margaret's Hospital, Leighton-road, Kentish Town, N.W.—Medical Specialist in Diseases of Children. 200 guineas.
St. Mark's Hospital for Cancer, Fistula, and Other Diseases of the Rectum, City-road, E.C.—Hon. S. and Hon. Asst. S. Also H.S. £150.
Salisbury General Infirmary.—Asst. H.S. £150.
Salop County Council.—Two Asst. M.O.'s. £517 10s.
Sheffield Royal Hospital.—Asst. Cas. O. £150.
Sheffield Royal Infirmary.—H.P. and H.S. £150 each.
Shrewsbury, Royal Salop Infirmary.—H.P. £200.
Singapore, Straits Settlements, Health Department.—Asst. Health Officer. $7500.
South London Hospital for Women, South Side, Clapham Common, S.W.—Female H.P. £100.
Stafford County Mental Hospital.—Locum Tenens Asst. M.O. 8 gs. a week.
West Africa.—Asst. M.O. £650.
West Bromwich and District Hospital.—Res. H.S. £200.
West End Hospital for Nervous Diseases, 73, Welbeck-street, W.—P. Also H.P. £200.
West London Hospital, Hammersmith, W.—H.P. £50. Also Clin. Assts.
Westminster Hospital, S.W.—Hon. Asst. Admin. of Anæs.
Whitehaven and West Cumberland Infirmary.—Res. H.S. £225.
Wigan Infirmary.—Hon. S., P., Asst. S., and Asst. P. Also Senior H.S. £250.
Wolverhampton and Staffordshire General Hospital.—H.S. £200.
Worcester County and City Mental Hospital, Powick.—Jun. Asst. M.O. £300.
Worcestershire County Council.—Asst. County M.O.'s and Sch. Oculist. £500 each.
Wormley Infant Welfare Centre.—M.O. 30s. per session.

The Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Buckhaven, Dulais Valley, and Forkhill.

Births, Marriages, and Deaths.

BIRTHS.

CLIVE MATTHEWS.—On June 14th, at St. Leonards-on-Sea, the wife of L. Clive Matthews, L.D.S. R.C.S.E., of a son.
DAWSON.—On June 4th, at Bury St. Edmunds, the wife of Geoffrey Dawson, L.D.S., R.C.S. Eng., of a son.
WACHER.—On June 13th, at St. George's-place, Canterbury, the wife of H. Stewart Wacher, M.R.C.S., L.R.C.P., of a daughter.
WALKER.—On June 10th, at Spencer House, Tetbury, Gloucestershire, the wife of T. Warburton Walker, M.D., of a daughter.

MARRIAGES.

FINNY—BUNFORD SAMUEL.—On June 8th, by licence, at All Saints' Church, Kingston-upon-Thames, William Evelyn St. Lawrence Finny, M.D., J.P., Barrister-at-Law, to Emily Grace Bunford Samuel, elder daughter of the late Isaac Bunford Samuel, and Mrs. Cooper Turner, of Marlow House, Kingston-upon-Thames.
MILLER—DIMOND.—On June 1st, at Kilglass Parish Church, by the Rev. W. A. Scanlen, cousin of the bride, Henry C. D. Miller, M.B., late Captain, R.A.M.C. (T.C.), of Whittington Moor, Chesterfield, to Wilhelmina Esther Dimond, late Q.A.I.M.N.S.(R), second daughter of Francis Dimond, J.P., Tully House, Lenamore, Rathowen, Ireland.

DEATHS.

CLEGHORN.—On June 14th, at his residence, Weysprings, Haslemere, Surrey, Surgeon-General Cleghorn, C.S.I., K.H.S., aged 79.
KERR.—On June 8th, at South Lodge, Dorchester, Elias William Kerr, M.D., M.Ch., B.A., aged 70.
LANCASTER.—On June 9th, at a nursing home in Streatham, Lieutenant-Colonel John Lancaster, I.M.S., retired.
SEWILL.—On June 11th, at Sand Dene, Meadvale, Redhill, Henry Sewill, M.R.C.S., aged 77.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.
MEETINGS OF SECTIONS.
Thursday and Friday, June 24th and 25th.

LARYNGOLOGY (Hon. Secretaries—Irwin Moore, Charles W. Hope).
SECOND ANNUAL SUMMER CONGRESS.
Exhibition of Pathological Specimens and Drawings, Surgical Instruments, and Drugs.
Thursday:—2.30 to 5.30 P.M., Reading of Papers on Cancer of the Throat, followed by Discussions.
7.30 P.M., Dinner at the Cafe Royal.
Friday:—10 A.M. to 1 P.M., Reading of Papers and Discussions left over from the previous day.
2.30 to 4 P.M., Demonstrations.
4 P.M., Clinical Meeting.

RESEARCH DEFENCE SOCIETY, at the House of the Medical Society of London, 11, Chandos street, Cavendish-square, W.
WEDNESDAY, June 23rd.—3.45 P.M., Annual General Meeting. Address:—Col. McCarrison, I.M.S.: Vitamines in their Relation to Health. Exhibition of Specimens.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY, at the Kensington Town Hall.
FRIDAY, June 25th.—7.45 P.M., Reception. 8.15 P.M., Cavendish Lecture:—Prof. C. S. Sherrington: Posture. Followed by Annual Conversazione.

TUBERCULOSIS SOCIETY, at Cardiff.
SATURDAY, June 26th.—Papers will be read by Dr. Brownlee, Dr. de C. Woodcock, and Dr. H. Ellis.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East.
TUESDAY, June 22nd—5 P.M., Croonian Lectures:—Dr. A. F. Hurst: The Psychology of the Special Senses and their Hysterical Disorders. (Lecture IV.)

LONDON HOSPITAL MEDICAL COLLEGE (SURGICAL UNIT), in the Units' Lecture Theatre, London Hospital, E.
Special Course of Lectures open to both Students and Post-Graduates.
Three Lectures on The Acute Abdomen—
WEDNESDAY, June 23rd, AND FRIDAY.—4 P.M., Mr. R. Howard. (Lectures I. and II.)

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.
MONDAY, June 21st.—2 P.M., Dr. Melville: X Ray Department.
TUESDAY.—2 P.M., Sir J. Dundas Grant: Throat Department. 2.30 P.M., Demonstration:—Dr. Burrell: Vital Capacity.
WEDNESDAY.—10.30 A.M., Dr. Punch: Demonstration of Museum Specimens. 2 P.M., Dr. Gosse: Cardiographic Department. 2.30 P.M., Demonstration:—Dr. Punch: Tuberculin, and other Tests for Tuberculosis.
THURSDAY.—10.30 A.M., Dr. Burrell: Artificial Pneumothorax. 2.30 P.M., Demonstration:—Dr. Fenton: Conduct of Tuberculosis Dispensary.
FRIDAY.—2 P.M., Dr. Melville: X Ray Department. 2.30 P.M., Demonstration:—Dr. Burrell: Conduct of Tuberculosis Dispensary.
SATURDAY.—1 P.M., Dr. Batty Shaw: Special Demonstration in the Out-patient Department.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, W.C. 1.
MEDICAL SCHOOL.
MONDAY, June 21st.—2–3.30 P.M., Out-patient Clinic: Dr. Collier. 3.30 P.M., Dr. Kinnier Wilson: Paralysis Agitans.
TUESDAY, June 22nd.—2–3.30 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Dr. Risien Russell: Disseminated Sclerosis.
WEDNESDAY, June 23rd.—2 P.M., Dr. Grainger Stewart: Epilepsy. 3.15 P.M., Demonstration of Fraenkel's Exercises. I.
THURSDAY, June 24th.—2–3.30 P.M., Out-patient Clinic: Dr. Farquhar Buzzard. 3.30 P.M., Dr. Saunders: Myelitis.
FRIDAY, June 25th.—2–3.30 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.15 P.M., Demonstration of Fraenkel's Exercises. II.
Fee for Post-Graduate Course £7 7s. C. M. HINDS HOWELL, Dean.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Westmoreland-street, W.
MONDAY, June 21st.—5.30 P.M., Post-Graduate Lecture:—Dr. Price: Auricular Fibrillation.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL (UNIVERSITY OF LONDON).
A Course of Post-Graduate Lectures on Syphilis is being given by various members of the staff of King's College Hospital during the present year.
FRIDAY, June 25th.—9.15 P.M., Prof. A. Whitfield: Treatment of Syphilis. I.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
MONDAY, June 21st.—2.30 P.M., Mr. J. B. Banister: Gynæcological.
TUESDAY.—9.45 A.M., Lieut.-Col. R. H. Elliot: Selected Eye Cases and Operations. 2.15 P.M., Selected Cases:—Dr. R. M. Leslie: Diseases of the Lung. 3.15 P.M., Clinical Lecture:—Mr. Benians: Chronic Infections of Mucous Surfaces. 4.30 P.M., Lecture:—Lieut.-Col. Byam, O.B.E.: The Debilitated Man from the Tropics.
WEDNESDAY.—2.30 P.M., Dr. W. J. Oliver: Dermatological.
THURSDAY.—2.30 P.M., Mr. N. Fleming: Ophthalmological. Dr. J. Metcalfe: Radiology.

FRIDAY.—2.30 P.M., Dr. C. E. Sundell: Diseases of Children.
SATURDAY.—3 P.M., Mr. H. W. Carson: Selected Surgical Cases.
Daily:—2.30 P.M., Operations, Medical and Surgical Clinics, &c.

ST. MARYLEBONE GENERAL DISPENSARY, 77, Welbeck-street, Cavendish-square, W.
Post-Graduate Course on Infant and Child Welfare.
TUESDAY, June 22nd.—10.30 A.M., Dr. E. Pritchard: Practical Demonstrations on the Management and Feeding of Infants and Young Children—Lecture VII., The Uses of Dried Milk and Patent Foods.
THURSDAY.—3 P.M., Lecture VIII., The Management of Difficult Cases.

INFANTS HOSPITAL, Vincent-square, Westminster, S.W.
TUESDAY, June 22nd.—5 P.M., Dr. R. Vincent: Practical Points in Infant Feeding.

UNIVERSITY OF LONDON.
Advanced Lectures in Physiology to Students of the University and others interested in the subject.
A Course of Eight Lectures on the Bio-Chemistry of Sterols will be given in the Physiological Laboratory of the University, South Kensington, S.W.
TUESDAY, June 22nd.—5 P.M., Lecture VI., Mr. J. A. Gardner.

UNIVERSITY OF SHEFFIELD—FACULTY OF MEDICINE POST-GRADUATE LECTURES, at the Sheffield Royal Infirmary.
WEDNESDAY, June 23rd.—4 P.M., Prof. Connell: Lesions of Foot and Pott's Fracture.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.
TUESDAY, June 22nd.—4.30 P.M., Lecture:—Dr. E. M. Brockbank: Anæmias and their Diagnosis.

MANCHESTER FRENCH HOSPITAL POST-GRADUATE LECTURES, 24, Acomb-street (behind Whitworth Park).
THURSDAY, June 24th.—4.30 P.M., Dr. A. C. Magian: Chronic Tubo-Ovarian Inflammation and its Relation to Venereal Disease. Operative Treatment.

Communications, Letters, &c., to the Editor have been received from—

A.—Dr. C. J. H. Aitken, Lond.; Sir C. Allbutt, Cambridge; Dr. E. D. Adrian, Cambridge.
B.—Mr. C. Blizard, Lond.; Prof. E. Barclay-Smith, Lond.; Prof. A. E. Boycott, Lond.; Baby-Saving League of British Guiana, Georgetown; Prof. W. B. Bell, Liverpool; Brighton, School Medical Officer of; Dr. G. Blacker, Lond.; Dr. C. Browne, South Mimms; Mrs. C. Brereton, Lond.; Dr. H. B. Brackenbury, Lond.; Messrs. Butterworth and Co. (India), Calcutta; British Medical Association, Cambridge, Financial Sec. of.
C.—Sir James Cantlie, Lond.; Mr. G. Chubb, Lond.; Dr. E. P. Cumberbatch, Lond.; Dr. N. H. Choksy, Bombay; Prof. E. L. Collis, Cardiff; Dr. C. Chidell, Folkestone; Sir J. Crichton-Browne, Lond.
D.—Mr. A. Doran, Lond.; Dr. L. S. Dudgeon, Lond.; Dr. S. Davies, Lond.; Dr. J. Donald, Leicester; Mr. F. G. Davies, Worcester; Dr. J. H. Davies, Leicester; Capt. F. C. Doble, Lond.
E.—Dr. J. W. Edington, Seabrook; Dr. H. A. Ellis, Lond.
F.—Federation of British Industries, Lond.; Dr. J. G. Forbes, Lond.; Friends Emergency and War Victims' Relief Committee, Lond.
G.—Dr. S. R. Gloyne, Lond.; Dr. H. L. Gordon, Lond.; Dr. W. Gordon, Exeter; Dr. H. O. Gunewardene, Lond.; Mr. H. Gardiner, Lond.; Mr. P. Gosse, Lond.; Mr. G. E. Gask, Lond.; Lt.-Col. E. D. W. Greig, I.M.S., Kasauli; Capt. R. L. Gamlen, Stockport.
H.—Dr. R. Hallam, Sheffield; Dr. C. Homi, Lond.; Messrs. Adam Hilger, Ltd., Lond.; Dr. E. Hemsted, Newbury; Maj.-Gen. P. Hehir; Mr. J. T. Henderson, Pietermaritzburg.
I.—Infants Hospital, Lond.
K.—Dr. T. R. Kenworthy, Shipley; King's College Hospital Medical School.
L.—Dr. T. L. Llewellyn, Newcastle; Dr. Lachmann, Bad Landeck.
M.—Mr. G. Mayall, Bolton; Lt.-Col. D. G. Marshall, I.M.S., Edinburgh; Metropolitan Life Insurance Co., New York; Ministry of Health, Lond.; Dr. W. C. Morton, Leeds; Prof. C. S. Myers, Porlock; Dr. I. Moore, Lond.; Prof. R. Morison, Newcastle-on-Tyne; Dr. J. B. McDougall, Wakefield.
N.—National Hospital for the Paralysed and Epileptic, Lond., Sec. of; Messrs. Noyes Bros. and Cutler, St. Paul; North-East London Post-Graduate College, Dean of.
O.—Dr. W. A. Ogilvy, Birstall.
P.—Dr. L. J. Picton, Holmes Chapel; Mr. J. H. Parsons, Lond.; Dr. C. F. Pedley, Timperley; Dr. J. L. Pawan, Cedros, Trinidad.
R.—Royal Society, Lond.; Dr. J. D. Rolleston, Lond.; Research Defence Society, Lond.; Royal Society of Tropical Medicine and Hygiene, Lond., Hon. Sec. of; Dr. J. J. Redmond, Lond.; Sir Humphry Rolleston, Lond.
S.—Dr. S. Samuel, Leeds; Senex; Society for the Prevention of Venereal Disease, Lond., Hon. Sec. of; Mr. T. Skinner, Lond.
T.—Dr. L. T. Thorne, Lond.; Dr. G. L. Thornton, Exmouth; Miss E. M. Templeton, Lond.; Dr. J. L. Tayler, Lond.; Mr. H. Tod, Lond.; Dr. E. N. Tindal-Robertson, Lond.; Tuberculosis Society of Great Britain and Ireland, Lond.; Dr. C. E. Pronger, Harrogate.
U.—University of Allahabad, Registrar of.
V.—Virol, Ltd., Lond.
W.—Dr. J. D. Wynne, Norwich; Dr. N. Wood, Lond.; Dr. E. Watson-Williams, Clifton; Dr. C. Worster-Drought, Lond.; West London Post-Graduate College, Sec. of; Dr. J. H. Woodroffe, Lond.; West London Medico-Chirurgical Society; Dr. Vere Webb, Tring; Dr. F. P. Weber, Lond.; Prof. Whitehouse, Birmingham.
Y.—Dr. R. A. Young, Lond.

Communications relating to the editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, London, W.C. 2.

Dr. Vere G. Webb points out that Miss Millicent Vere Webb, the lady superintendent of the Dufferin Victoria Hospital, is also senior surgeon to the institution, and was recommended for the Kaisar-i-Hind medal principally for her surgical work.

Notes, Short Comments, and Answers to Correspondents.

THE HYGIENE OF THE FEET AND PHYSICAL EFFICIENCY.

BY FREDK. JOHNSON, M.B. LOND., F.R.C.S. ENG.

Now that renewed attention is being bestowed on all matters that affect the physical fitness of the youth of the nation, it may not be amiss to call attention to the relation that subsists between sound feet and health. Modern civilisation requires the encasing of the foot in a leather covering. The foot has thus been rendered a delicate member, to a degree only to be appreciated after a study of the human foot among a primitive people who live and grow up unshod, or at the most use a light sandal.

Contrasts.

Let us take, then, for comparison two types of the human foot: (1) the foot of a desert-dwelling Arab; (2) the foot of an artisan of one of our large towns. A study even of the skeletal parts will reveal differences in the degree of development of individual bones, but it is in the living feet that the contrast is most marked. It has been my lot to spend nearly 20 years amongst the Arabs of Eastern Palestine and Mesopotamia. It has also fallen to my lot to see something of our recruits under training during the early years of the war.

It would be interesting to know the statistical returns of recruits who came under treatment for defects of the feet—such as hammer-toes, overlapping toes, flat-foot, ingrowing toe-nail, various forms of tender feet—and to estimate the loss of time which the cure of these defects entailed.[1] I may remark in passing that the Army and Navy pattern of boot seemed, in my judgment, all that could be desired. If, in addition, the statistics were to include those suffering from various degrees of trench foot, the measure of the evil will be still more apparent. It cannot be doubted that the tenderness of the foot of civilised man and its enfeebled vaso-motor mechanism, unable to adapt itself to low temperatures, predisposes that member to the various pathological conditions comprised in the term trench foot. A department of the Ministry of Health might with advantage pursue this inquiry and gather these statistics from the R.A.M.C. war records.

In considering the causes that have operated in producing the feeble, pallid, and delicate appearance of the foot of the average civilised man, it should be noted that whilst a mechanical cause—compression—accounts for a good deal, the exclusion of light and air have not been without influence. In the case of the bare-footed Arab type it is easy to understand the effect of the actual contact of the sole of the foot with the earth—the friction on the skin, the pressure upon the numerous small joints of the foot of the body weight, with distribution unimpeded by compressing footwear, and, lastly, the complete freedom of the circulation, both cutaneous and deep, the wholesome influence of light and air, and the unimpeded activity of the numerous sweat glands. I would emphasise the observation that, marked as is the difference in outward configuration of the two types of foot, the difference in physiological, especially circulatory, efficiency is still more marked. I have seen the bare-footed Arab in cold mountainous parts and have wondered at his comparative insusceptibility to cold feet.

The High Heel and the Pointed Toe.

When the boot is ill-fitting or ill-shaped the effects of compression are inevitably exaggerated. These effects are more commonly seen in the case of women, for reasons easily explained by reference to the lines of the modern woman's shoe. It should not be forgotten that the penalty of delicate feet is not confined to those long-suffering members alone, but secondary effects of an untoward kind follow inevitably. I allude to the unwillingness to take sufficient exercise and the impairment of general health as the result.

What puzzling thoughts must come to a professor of anthropology as he surveys the boots and shoes exposed for sale in a modern boot shop, especially the footwear of women and children. How is it that he sees the shoe of the young child with a perfect anatomical shape, a low heel, and

[1] There are, of course, no statistics available for a corresponding number of women. If there were, the result would be still more eloquent, because the incidence of irregularities of the toes and feet is greater in women than men.

plenty of toe-space; and then as he turns to the footwear of elder girls and women he finds such a steady alteration in shape and style. Apart from simple growth there has been no change in the anatomy of the foot. Not until our imaginary professor turns to the region of female psychology does he get any explanation of the phenomenon. He will further discover that having reached an explanation he is still far from instituting an acceptable remedy to an aberration so pernicious in its results. The remedy of the evil, however, is not in his department, and for this he may be thankful.

Many of our ideas of physical culture and æsthetics owe their origin to the ancient Greeks; what these ancient pioneers of grace and beauty would say to much of modern footwear and its accompaniment—faulty gait—I must leave to the imagination. The prevalence of faulty gait is not sufficiently recognised in this busy age; however, it is widespread, and in its minor manifestations at least owes its origin to the foot and its coverings.

Another adverse influence to the well-being of the foot is worthy of mention in passing—the hard unyielding surface of our roads and pavements—an evil much increased since the rise of motor traffic. In making the above comparison between the foot of modern civilised man and the foot of the present-day Arab or ancient Greek, I am not unmindful of the important item of climate as a factor in the selection of suitable footwear. No doubt my residence in the East and my contact with Orientals have coloured my remarks. I have tried to emphasise the divergence between the two types of foot—that of the Arab and that of civilised man—and this divergence is barely appreciated by those who have not lived amongst a primitive people.

Some Suggestions.

I now pass to one or two suggestions which aim at raising the physiological tone of the feet. Firstly, I would remark that, in a matter of this kind, counsels of perfection are of little use, and conventional ideas must, to some extent, be respected. The most that can be advised is a corrective designed to counteract the effects of unfavourable causes. Something, too, can be effected on educational lines.

The first recommendation is the adoption in schools and camps—holiday camps for boys and girls, and military establishments—of a special bare-foot drill, as an integral part of the usual physical culture training. I know that the curriculum, both in our schools and in military camps, is already a full one. But if the evil of "delicate feet" is as great as I have indicated, it will be no waste of time if an hour, three days a week, winter and summer, be devoted to this special form of physical culture. The children of our elementary schools would not, I believe, require much persuading to follow the suggestion; objections, if they arise, would more likely come from the teachers. As to the ground on which the drill should take place, I would suggest two types likely to be serviceable: (1) an ordinary grass field; (2) a ground with a surface of fine cinder-ash, well rolled, and firmly set. This latter would cause friction and thereby promote the circulation of the skin of the sole. I would further suggest that medical inspectors of schools should include amongst their duties the inspection of the feet and footwear of children, and that the official forms supplied by the county educational committees should provide for this. The wearing of sandals without stockings should be encouraged, especially in young people, during the summer months.

Lastly, educational propaganda should be instituted. Colleges of physical culture are increasing both for men and women. Consider for the moment those for women, for perhaps it is amongst women that education on the subject is more needed. Young women leave these colleges after three years' study, well grounded in the essentials of anatomy and allied subjects which form the foundation of physical culture. These qualified teachers should be looked to as a means of educating the uninitiated in schools, and demonstrating to their pupils the mechanics of the normal human foot, with its arches and multiple small joints, and the part the arches and joints play in the functions of bearing the body-weight and of locomotion. The mechanical effect of the high heel, combined with the pointed, stiff and unyielding toe-cap, under the influence of the body-weight, should also be demonstrated. Surely, with a little enlightenment of this kind, the penalties of wearing the "fashionable shoe" would not be so lightly incurred as in the days of ignorance. The demonstrator should not omit to point out the effects upon a walker up and down hills of high heels and pointed toes. Something would be gained if the height of the heel could be reduced even to an inch.

Physical culture is recognised as a subject of national importance; upon the feet rests the whole superstructure of man's erect form. Might not some of the time now devoted to the culture of the superstructure be spared with advantage to the well-being of the lowly, hidden feet?

PUBLIC HEALTH IN NIGERIA, 1918.

A REPORT on the Blue-book for the year 1918, drawn up by the Acting Governor, Mr. A. G. Boyle, C.M.G., has just been presented to the Imperial Parliament. A considerable increase in the number of resident Europeans is noted. In the Northern Province it was estimated that there were 989 Europeans at the end of 1918, of whom about 495 were officials. In the Colony and Southern Provinces there were 2000 Europeans, about 1250 being officials. The native population of the Northern Provinces is estimated at 8,537,369 and of the Southern Provinces and Colony at 7,856,000, a total of about 16 millions. The average density in the Northern Provinces would therefore be about 33 to the square mile, and in the Southern Provinces and Colony about 98.

Influenza.

On the whole, the general health of the community in the Southern Provinces in 1918 compared unfavourably with previous years. The great pandemic of influenza reached Nigeria towards the end of September, raged during October, and declined rather abruptly in November. Imported into Lagos by sea from the Gold Coast, in spite of unremitting efforts on the part of the sanitary authorities, it was but a matter of time till the disease had spread all over the country. Calabar was the last to suffer owing to the infrequency of the shipping service between there and ports to windward, and the epidemic was at its height there when it had practically died out in Lagos. The epidemic did not present any features different from those observed in other parts of the world, unless it was in its severity. Gastro-intestinal types were noted, but in the great majority of the cases the brunt of the disease fell on the respiratory system. All the deaths among the Europeans were due to septic broncho-pneumonia. It is difficult to estimate either the incidence of the disease or the mortality except in Lagos, where there is a properly organised health department, and where registration is compulsory. In that centre a case-incidence of 50 per cent., with a mortality of 5 per cent., would probably be a low estimate. Among the poor and intensely ignorant both the incidence and mortality must have been very much higher. It is estimated, from the Register of Deaths and a comparison of the death-rate during the epidemic with the same periods in previous years, that 1·5 per cent. of the population of Lagos died of influenza.

Other Diseases.

Amongst the native population the most prevalent diseases, excluding influenza, were affections of the digestive and respiratory systems, infective diseases, and rheumatic and skin affections. Anæmia is responsible for a great deal of ill-health and invaliding. Gout among both Europeans and natives is fairly common. There were only 9506 cases of malaria in 1918, as compared with 11,804 in 1917. Two cases of yellow fever occurred, one Europeah and one native; both were fatal. One case of trypanosomiasis was treated at Ibadan and one at Lagos; the Ibadan case was imported from the Northern Provinces, whilst the Lagos case was an old one which had been under treatment in England. There were 29 cases of blackwater fever in Europeans, with 4 deaths; the native had this disease and recovered. 2231 cases of chicken-pox, which is endemic and from time to time epidemic, were recorded, with 10 deaths—a high rate of mortality for this disease. There were 439 cases of small-pox, with 74 deaths, or a case-mortality of 168·0 per 1000. Nothing approaching a serious outbreak of the disease occurred. The incidence of small-pox is principally confined to the dry season. Dysentery is for the most part of the amœbic variety. Among Europeans the case-incidence was practically the same as in the previous year; 40 cases were recorded, but this gives a low estimate of the number who are carriers of the amœba. Emetine and Alcresta ipecac. have given good results in the treatment. Amongst natives 920 cases were recorded with a mortality of 16·3 per cent., as against 1059 with a mortality of 11·2 per cent. in 1917.

A DEMONSTRATION OF ARTIFICIAL LIGHT LIMBS.

WE drew attention in an annotation published in our issue of June 12th to the interesting medical sections of the exhibits (Army, Naval, and Air Forces) now on view at the Imperial War Museum at the Crystal Palace. Amongst other things claiming special notice is the exhibit of light legs in the Army Medical and Red Cross Section of the Museum, shown under the auspices of that worthy institution, "The Disabled Society." The object of this society is to ensure that the best type of artificial limb shall be brought within the reach of all ranks. It is pointed out that it was early evident that the heavy wooden limbs needing harness over the chest and shoulders made the task of the wounded man a heavy one, and it is now established that with a light clean limb simply attached with a pelvic band a man may regain practically all his previous activity, and not only earn his living in most occupations, but enjoy games and sport without undue fatigue. Lieutenant-General Edward Bethune expresses the hope that, pending the adoption by the authorities of a standard light limb, such appliances will be encouraged and find a place on the market. Meantime the society announces that any information in their possession is freely at the service of anyone requiring such information, and the evidence of actual wearers of these limbs is available. The activities of the Disabled Society are recorded from time to time in a publication known as "The Ex-Service Man." The temporary address of the society is 123, Church-street, Chelsea, S.W. 3. The organisation should arouse wide sympathy and substantial support.

WOMEN'S HOLIDAY FUND.

THE object of this fund, which began its work in 1895, is to help the London working woman to have a week or a fortnight's holiday by the sea or in the country. In spite of higher wages there are many who have to spend their weekly money on the bare necessities of life, and have no margin left for holidays. Help is needed specially for the woman dependent on her own exertions for her livelihood, and for the mothers of large families.

All applicants pay as much as they can towards their expenses, but the society has to meet about two-thirds of the total cost. Donations should be sent to the Secretary of the Women's Holiday Fund, 76, Denison House, 296, Vauxhall Bridge-road, S.W. 1.

EASTERN AND WESTERN MEDICINE.

AT the last meeting of the Madras Legislative Council heated discussion centred round a resolution which recommended the appointment of a committee for the investigation and encouragement of Ayurvedic and Unani systems of medicine now in vogue in the Presidency. In moving the resolution an Indian councillor said that the depreciation of the Ayurvedic system of medicine was quite unwarranted. The Ayurvedic system was just as scientific as the Western system of medicine. The medical aid provided by Government to taxpayers was totally inadequate. The speaker declared that, in his opinion, in cases of snake-bite and rabies the Western treatment failed, while the Eastern, to his knowledge, succeeded.

THE CHARACTERISTICS OF THE ULSTERMAN.

Sir John Byers has written an interesting and topical pamphlet with this title. The study of character and temperament is no less important to the doctor than it is to the statesman who at the present juncture may find help in the solution of difficult problems by a perusal of Sir John Byers's anecdotal study. As the author points out, in no part of the British empire have there been so many different races in various periods as in Ulster, while the province differs from the rest of Ireland in its physical aspects. Reticent and parsimonious in the use of words, unless he is sure of their effect, the Ulsterman, even in sickness, does not care to waste his breath. An instance is given of a hospital patient who never spoke for a fortnight save by pointing and nodding. When roused, however, the Ulsterman can speak with passion, quickness, and alertness, and is stern, dogged, and unyielding. His suspicion of compliments is indicated by the saying, "He's a dale too sweet to be wholesome." Industry, enterprise, and perseverance, with much "judition"—i.e., sound judgment—are also characteristics, in accordance with Sir John Byers's summary.

THE WELFARE OF THE PROFESSION AND THE COUNTRY.

To the Editor of THE LANCET.

SIR,—The recent resolution of the Insurance Commissioners to pay mileage from the doctor's residence rather than from the nearest doctor seems detrimental to both, since it may lead to an immense usage of transport material—motors, carriages, coachmen, chauffeurs, &c. All doctors are qualified and presumably equally able. The idea that an individual of the public may have that one doctor, however distant he may be, alone understands his case, is, except in very special instances, illusory; in fact, pure imagination. As to the immense amount, perhaps, to be used in extra transport, will it not be wasted? Would not the country be richer were such an amount saved? Can the country afford waste at the present time? The doctor during the long hours of the passive inactivity of transport in all weathers cannot expect to have a healthy time of it. I suppose it will mean shortening of his life, and his advice—well, I would rather have it from a healthily employed man. Legislative wisdom might perhaps travel on the lines of confining the people to the nearest doctor, like in rural districts the people often go the nearest place of worship, and treating them otherwise as having luxuries—taxable luxuries of mileage to pay. The doctors then might be fully employed, many more living in country parts than now, and mostly able to get through their work on their feet healthily.

I am, Sir, yours faithfully,

June 4th, 1920. W. P. D.

"THE ROTTEN MEDICAL PROFESSION."

UNDER the above title we have received from a serious correspondent this letter for publication:—

The country is quite glutted with persons holding medical qualifications, yet competent doctors were never more difficult to find. Only about 10 per cent. of doctors are trained up to the point of being able to perform operations or set broken bones.

Third- and fourth-rate medical schools enrol students (for the sake of the fees) in numbers far in excess of the clinical material available for their training. These inefficients become club doctors, panel doctors, sixpenny doctors, and so forth. Much time and money is wasted before patients can find a doctor competent to deal with their case.

Stringent "State" regulations should ensure that every medical student obtain the opportunity of an efficient training up to being able to perform operations, no favoured students being allowed in the hospitals after the other students have been dismissed.

A single "State" qualification ought to replace the many useless diplomas at present in vogue, and the holder's possession of it should be unassailable and absolute. By virtue of being qualified alone, every medical person should automatically become a member of the staff of the hospital serving the district in which he or she is a permanent resident.

No medical panel should be allowed to be sold, and a triennial dissolution of all panels should be enforced to give new beginners a chance. The system enabling rings of doctors to keep the appointments amongst them ought to be abolished, one medical man one medical appointment only.

The writer, we feel sure, believes every word of what he has written, having taken what he would term his facts from gossip. He does not know the need for doctors, but repeats the old story of a glut. He does not know of the standardising work of the General Medical Council in education. He seems not to know that there are difficulties in the institution of a one-portal system which could only be removed by legislation. We recommend our correspondent to read the Interim Report of the Consultative Council on Medical and Allied Sciences, and to see what is there projected for giving the general practitioner opportunities for the best scientific work.

BOOKS, ETC., RECEIVED.

ALLAN, PHILIP, AND CO., London.
A Concise Chronicle of Events of the Great War. By Captain R. P. P. Rowe. Pp. 344. 10*s.* 6*d.*
Toasts, Rakes, and Cits. By Sir Richard Steele, Joseph Addison, and others. (The Pilgrim's Books.) Pp. 256. 5*s.*

BELL, G., AND SONS, London.
Intermediate Text-book of Chemistry. By A. Smith (Columbia University). Pp. 520. 8*s.* 6*d.*

BUTTERWORTH AND CO., London, India, Australia, and Canada.
Syphilis in General Practice, with Special Reference to the Tropics. By K. K. Chatterji, F.R.C.S.I. With Introduction by W. D. Sutherland, I.M.S. Pp. 382. Rs.15.

GREEN, W., AND SONS, Edinburgh.
Rheumatism and Arthritis. By Prof. R. Stockman, M.D. Pp. 132. 15*s.*

GRIFFIN, CHARLES, AND CO., London.
Introduction to Midwifery. By A. Donald, M.D. 8th ed., revised. Pp. 192. 6*s.*

HEINEMANN, WILLIAM, London.
The Mental Hygiene of Childhood. By W. A. White. Pp. 194. 6*s.*

"LA MEDECINE," 21, Boulevard St. Germain, Paris.
Condensed Milk. By Dr. P. Lassabliére. Pp. 84.

LIBRAIRE FELIX ALCAN, Paris.
Traumatismes Cranio-Cérébraux. Par Prof. H. Duret. Pp. 1502. Fr.75.

LIVINGSTONE, E. AND S., Edinburgh.
Handbook of Diseases of the Nose, Throat, and Ear for Students and Practitioners. By W. S. Syme, M.D. Pp. 329. 9*s.*

LONGMANS, GREEN, AND CO., London.
Anatomy, Descriptive and Applied. By Henry Gray, F.R.S. 21st ed. Edited by Prof. R. Howden, M.B., D.Sc. Notes on Applied Anatomy, revised by Dr. A. J. Jex-Blake and J. Clay, F.R.C.S. Pp. 1366. 42*s.*

MASSON ET CIE, Paris.
L'Infection Bacillaire et la Tuberculose chez l'Homme et chez les Animaux. Par A. Calmette, Sous-Directeur de l'Institut Pasteur de Paris. Pp. 620. Fr.55.

METHUEN AND CO., London.
The Mammary Apparatus of the Mammalia in the Light of Ontogenesis and Phylogenesis. By Prof. E. Bresslau, M.D. With Note by Prof. J. P. Hill, D.Sc. Pp. 145. 7*s.* 6*d.*

MILFORD, HUMPHREY, London.
Dodi Ne-Nechdi (Uncle and Nephew). The work of Berachya Hanakdan. Now edited from MSS. at Munich and Oxford, with an English translation, introduction, &c., to which is added the first English translation from the Latin of Adelard of Bath's Questiones Naturales. By Prof. Hermann Gollancz, M.A., D. Litt. Pp. 161. Hebrew text 60. 21*s.*

PEARSON, C. A., London.
Diary of a Police Surgeon. By Graham Grant, Lieutenant-Colonel, R.A.M.C.T. Pp. 188. 3*s.* 6*d.*

ROUTLEDGE, GEORGE, AND SONS, London.
The Social Diseases: Tuberculosis, Syphilis, Alcoholism, Sterility. By Dr. J. Héricourt. Translated, and with a final Chapter, entitled the Social Maladies in England, by Bernard Miall. Pp. 246. 7*s.* 6*d.*

SCIENTIFIC PRESS, London.
The Conquest of Venereal Diseases. By Charles Russ, M.B. Pp. 16. 1*s.*

THACKER, SPINK, AND CO., Calcutta and London.
Clinical Methods for Students in Tropical Medicine. By Lieut.-Col. G. T. Birdwood, I.M.S., and others. 3rd ed. Pp. 378. Rs.7.8.

THIEME, GEORG, Leipzig.
Diätetik der Magenund Darmkrankheiten. Von Prof. Dr. I. Boas. Pp. 216.

UNIVERSITY OF LONDON PRESS, London.
Animal Experiments and Surgery. By W. G. Spencer, M.S. Pp. 179. 6*s.*

VOGEL, F. C., Leipzig.
Lehrbuch der Chirurgie. Von Prof. Dr. Carl Garrè und Prof. Dr. A. Borchard. Pp. 695. M.38.

WRIGHT, J., AND SONS, Bristol. (SIMPKIN, MARSHALL, London.)
The Medical Annual, 1920. Pp. 498. 15*s.*